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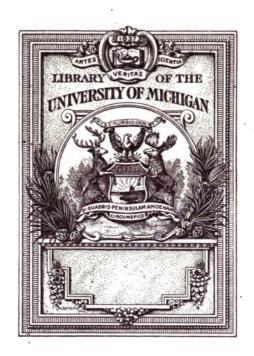
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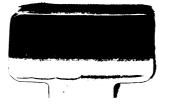
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TRANSACTIONS

OF THE

KANSAS STATE HORTICULTURAL SOCIETY,

(ORGANIZED IN 1869.)

CONTAINING

THE PROCEEDINGS OF THE THIRTY-EIGHTH AND THIRTY-NINTH ANNUAL MEETINGS, TOPEKA, DECEMBER, 1904, AND DECEMBER, 1905, AND THE TWENTY-FIRST SEMIANNUAL MEETING, HELD AT WICHITA, JUNE, 1905.

VOL. XXVIII.

EDITED BY THE SECRETARY, WILLIAM H. BARNES.

PUBLISHED BY THE STATE.



STATE PRINTING OFFICE, TOPEKA, 1906.

1286

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Letter of Transmittal.

ROOMS OF THE KANSAS STATE HORTICULTURAL SOCIETY, STATE CAPITOL, TOPEKA, March 10, 1906.

To Hon. E. W. Hoch, Governor:

We present herewith the twenty-eighth volume of Transactions of the Kansas State Horticultural Society, containing reports of the thirty-eighth and thirty-ninth annual meetings, the twenty-first semiannual meeting, statistics of horticulture in the state, and an imperfect, yet highly important, report on the cemeteries and burialplaces in the state. We hope they may each receive your careful attention. The importance, at times, of immediate information to our horticulturists, makes us hope for such legislation as will make the report annual, and, also, some laws to protect our state from being the dumping-ground of infested and infected trees, plants, and seeds. The report on cemeteries is new, nothing of the sort having been previously attempted. The need of legislation on this line is very urgent, as will be apparent to you on reading. Our Society is growing, and becoming of greater value to the state annually, and should have just recognition in liberal appropriations. Surely no good citizen can afford to lend his influence in crippling this most important branch of husbandry.

Hoping this report, in its several parts and in its entirety, may meet with your approval, we respectfully present the same.

FRANK HOLSINGER, President. WILLIAM H. BARNES, Secretary.

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Officers.

MAJ. FRANK HOLSINGER, President	Rosedale.
W. F. SCHELL, Vice-President	
WALTER WELLHOUSE, Treasurer	
WILLIAM H. BARNES, Secretary	Topeka.

Entomologist.

PROF. E. A. POPEROE Agricultural College, Manhattan.

Trustees.

First District, E. J. HOLMAN	Leavenworth.
Second District, E. P. DIEHL	Olathe.
Third District, F. L. KENOYER	Independence.
Fourth District, JOHN COUSINS	Eskridge.
Fifth District, WILLIAM CUTTER	Junction City.
Sixth District, J. J. ALEXANDER	Norton.
Seventh District, C. A. BLACKMORE	Sharon.
Eighth District, GEO. A. BLAIR	Mulvane.

Honorary Vice-presidents for Life.

Judge Fred. Wellhouse	Ex-President.
Hon, J. W. Robison	Ex-vice-president.

Honorary Members for Life.

Bailey, Prof. L. H., Ithaca, N. Y. Bohrer, Dr. G., Lyons, Kan. Burrill, Prof. T. J., Urbana, Ill. Campbell, W. G., jr., St. Joseph, Mo. Colman, Norman J., St. Louis, Mo. Cowgill, E. B., Topeka, Kan. Evans, J. C., Harlem, Mo. Forbes, Prof. S. A., Champaign, Ill. Gano, W. G., Parkville, Mo. Goodman, L. A., Kansas City, Mo. Greene, Wealey, Des Moines, Iowa.

Hale, J. H., South Glastonbury, Conn.
Harrison, C. S., York, Neb.
Irwin, J. M., St. Joseph, Mo.
Johnson, Mrs. Geo. Y., Portland, Ore.
Jordan, Menzo, Champaign, Ill.
Kelsey, Prof. S. T. (the last of the original members), Saginaw, N. C.
Lantz, Prof. D. E., Manhattan, Kan.
Murray, N. F., Oregon, Mo.
Snow, Prof. F. H., Lawrence, Kan.
Waugh, Prof. F. A., Amherst, Mass.

Faculty of Kansas State Agricultural College, Manhattan, Kan. as follows:
The President. | Chair of Zoology and Entomole

Chair of Chemistry and Mineralogy. Chair of Betany and Horticulture. Chair of Zoology and Entomology. Chair of Household Economy and Hygiene. Chair of Industrial Art and Design.

Life Members Residing in Kansas.

Alexander, J. J., Norton, Norton.
Bailey, Geo. W., Wellington, Sumner.
Baldwin, S. J., Seneca, Nemaha.
Barnes, William H., Topeka, Shawnee.
Barrett, L. T., Centralia, Nemaha.
Beckley, J. C., Springhill, Johnson.
Beebe, Mrs. Elisabeth, Columbus, Cherokee.
Blackmere, C. A., Sharon, Barber.
Blair, Geo. A., Mulvane, Sumner.
Booth, William, Winchester, Jefferson.

Bourne, D. M., Delphos, Ottawa.
Brazelton, John, jr., Wathena, Doniphan.
Brooke, A. L., North Topeka, Shawnee.
Browne, Geo. E., Topeka, Shawnee.
Buckman, A. H., Topeka, Shawnee.
Buell, D. G., Willis, Brown.
Bullard, Mrs. C. W., Tonganoxie, Leav'th.
Bullard, H. S., Tonganoxie, Leavenworth.
Cecil, J. F., Topeka, Shawnee.
Chandler, M. E., Argentine, Wyandotte.

Life Members Residing in Kansas,

Coburn. F. D., Topeka, Shawnee. Collings, G. W., Wichita, Sedgwick. Cook, C. C., Eskridge, Wabaunsee. Cook, Thos. F., Effingham, Atchison. Cousins, John, Eskridge, Wabaunsee. Crow, S. M., Topeka, Shawnee. Curry, J. W., Winchester, Jefferson. Cutter, William, Junction City, Geary. Dickens, Albert, Manhattan, Riley. Dickinson, A. E., Meriden, Jefferson. Dickinson, S. S., Larned, Pawnee. Diehl, E. P., Olathe, Johnson. Dixon, F. W., Holton, Jackson. Eames, W. B., Delphos, Ottawa. Entsminger, A. L., Silver Lake, Shawnee. Ferris, H. L., Osage City, Osage. Fulcomer, John, Belleville, Republic. Geyer, Miss E., Leavenworth, Leavenworth. Graham, I. D., Topeka, Shawnee. Gravatt, Henry C., Sabetha, Nemaha. Graves, J. M., Effingham, Atchison. Grey, E. M., Perry, Jefferson. Griesa, A. C., Lawrence, Douglas. Griesa, A. H., Lawrence, Douglas. Harris, E. P., Topeka, Shawnee. Harrison, T. W., Topeka, Shawnee. Harshbarger, W. A., Topeka, Shawnee. Holman, E. J., Leavenworth, Leavenworth. Holsinger, C. V., Argentine, Wyandotte. Holsinger, F., Rosedale, Wyandotte. Ho!singer, Geo., Argentine, Wyandotte. Holsinger, G. L., Argentine, Wyandotte. Hoover, E. G., Wichita, Sedgwick. Huston, N. W., Fort Scott, Bourbon. Irwin, C. W., Wichita, Sedgwick. Johnson, Mrs. V. M., Highland, Doniphan. Jordan, J. S., Wakarusa, Shawnee. Kenoyer, F. L., Independence, Montgomery. Kern, H. H., Bonner Springs, Wyandotte. Lake, John W., Waldo, Russell. Lawrence, R. E., Wichita, Sedgwick. Litson, W. H., Wichita, Sedgwick. Longshore, J. S., Topeka, Shawnee. Longstreth, C. H., Lakin, Kearny. Luz, Phillip, Topeka, Shawnee. Lyon, E. H., Udall, Cowley. Maffet, Geo. W., Lawrence, Douglas. Martindale, C. D., Scranton, Osage. McMaster, John, Eskridge, Wabaunsee. McNicol, James, Lost Springs, Marion. Meser, J. J., Hutchinson, Reno. Miller, E. L., Topeka, Shawnee.

Miller, L. F., Perry, Jefferson. Moeser, William, Topeka, Shawnee. Moncrief, Jos., Winfield, Cowley. Mosher, J. A., Rydal, Republic. Myers, J. B., Eskridge, Wabaunsee Newlon, W. Smithson, Oswego, Labette. Oberndorf, A., jr., Centralia, Nemaha. Pancoast, B. F., Iola, Allen. Parker, Mrs. B. F., Haviland, Kiowa. Perkins, J. S., Turner, Wyandotte. Perkins, B. H., Turner, Wyandotte. Phillips, B. A., Osborne, Osborne, Plaskett, William, Lawrence, Douglas. Popence, E. A., Manhattan, Riley. Porter, H. H., Pittsburg, Crawford. Remsberg, J. E., Oak Mills, Atchison. Rhoades, Henry, Gardner, Johnson. Richardson, G. C., Wayside, Montgomery. Ringle, W. E., Galena, Cherokee. Robison, J. W., El Dorado, Butler. Rose, Geo. E., Rosedale, Wyandotte. Rubart, Miss Lizzie, Ogden, Riley. Rude, F. P., Topeka, Shawnee. Schell, W. F., Wichita, Sedgwick. Schlichter, J. B., Sterling, Rice. Scott, A. E., Meriden, Jefferson. Sharp, James, Parkerville, Morris. Shoe, L. A., Highland, Doniphan. Smith, B. F., Lawrence, Douglas. Smith, W. W., Le Roy, Coffey. Smyth, B. B., Topeka, Shawnee. Snyder, Edwin, Oskaloosa, Jefferson. Sutton, A. H., Independence, Montgomery. Taylor, Edwin, Edwardsville, Wyandotte. Taylor, T. T., Hutchinson, Reno. Thompson, J. A., Edwardsville, Wyandotte. Tincher, Geo. W., Topeka, Shawnee. Underwood, W. H., Hutchinson, Reno. Vandever, Geo. A., Hutchinson, Reno. Van Orsdol, B. F., Silver Lake, Shawnee. Wellhouse, Fred., Topeka, Shawnee. Welchouse, Walter, Topeka, Shawnee. Wheeler, E. D., Wakeeney, Trego. Whiteker, Geo. P., Topeka, Shawnee, Williams, J. L., Kansas City, Wyandotte. Williams, J. W., Holton, Jackson. Willis, A., Ottawa, Franklin. Wilson, A. V., Muncie, Wyandotte. Wolverton, E. K., Barnes, Washington. Yaggy, A. F., Hutchinson, Reno. Yaggy, B. E., Hutchinson, Reno. Yaggy, L. W., Hutchinson, Reno.

Life Members Not Residing in Kansas.

Barnes, J. T., Hansen, Idaho.
Cellar, W. D., Pacific Beach, Cal.
Chandler, C. A., Kansas City, Mo.
Crowley, J. H., Rocky Ford, Colo.
Daniels, E. T., Charleston, Okla.
Davidson, C. M., Huntington, W. Va.
Dobbs, J. B., Lima, Ohio.
Fosnot, W. E., Keosauqua, Iowa.
Gale, Prof. E., Mangonia, Fla.

Hitchcock, Prof. A. S., Washington, D. C. Irvin, W. A., Springfield, Mo. Milliken, Robt., Nampa, Idaho. Minger, H. M., Chicago, Ill. Newberry, H. J., Lone Wolf, Okla. Snyder, Wm., Ben Lomond, Cal. Stephens, E. F., Crete, Neb. Taylor, E. A., Houston Heights, Tex. Wild, Henry N., Sarcoxie, Mo.

The following life members have removed from addresses given, and cannot be traced:

Abner, Allen, College Park, Cal. Godfrey, A. N., Dayton, Wash. Hall, M., Oklahoma. Harris, F. B., White City. Moser, M. R., Wichita. Plank, Prof. E. N. (honorary), Kansas City. Roberts, H. B., Perry. Sheffield, C. H., Topeka. Shields, H. S., Garnett. Weidman, J., Oklahoma.

Annual Members, 1905.

Armstrong, T. E., Topeka.
Barnes, C. G., Topeka.
Barnes, I. I., Topeka.
Barnes, W. B., Wakarnsa.
Blackmore, C. A., Sharon.
Cooley, E. H., Wichita.
Crow, M. S., Louisiana, Mo.
Dillon, Geo. F., McLouth.
Bastman, Robt. E., Manhattan.
Huston, H. A., St. Louis, Mo.
Lowe, J. H., Ozawkie.
Messick, H. L., Quiney, Ill.
Mehler, J. C., Topeka.

Pearsol, M. V. B., Yates Center.
Schermerhorn, F., Ogden.
Schwartz, C. H. A., North Topeka.
Skinner, J. H., Shorey.
Smith, A. B., Topeka.
Smyth, Eugene, Topeka.
Steele, B. B., Topeka.
Taylor, L. R., Topeka.
Whitaker, E. J., Topeka.
Whitney, O. F., North Topeka.
Wilson, James E., Potwin.
Yaw, Frank, Wichita.

Delegates to Thirty-eighth Annual Meeting, December, 1904.

Allen County Horticultural Society, H. H. Klauman and J. T. Tredway.

Arkansas Valley Horticultural Society, Geo. A. Blair and C. N. Higginson; alternates, J. S. Payne and Clark Ellis.

Barber County Horticultural Society, C. A. Blackmore and E. E. Blackmore.

Douglas County Horticultural Society, J. N. Macomb and D. G. Watt; alternates, Sam'i
Reynolds and W. S. Koehring.

Manhattan Horticultural Society, W. J. Robison and R. J. Henry.

Manhattan Horticultural Society, Robt. E. Eastman and A. J. Nicholson.

Missouri Valley Horticultural Society, J. C. Peck and D. S. Haines.

Sedgwick County Horticultural Society, E. H. Cooley and Frank Yaw.

Shawnee County Horticultural Society, A. T. Daniels and R. B. Steele; alternates, S. A. Smith and Julia E. Whitney.

Wabaunsee County Horticultural Society, C. C. Gardner and Mrs. Andrew Pringle. Wathens Fruit Growers' Society, Geo. W. Kinkead. Wyandotte County Horticultural Society, A. V. Wilson and H. S. Wheeler.

Annual Members, 1906.

Cell, J., Topeka, Shawnee.
Daniels, H. T., Topeka, Shawnee.
Espenlaub, G. F., Rosedale, Wyandotte.
Greene, Wesley, Des Moines, Iowa.
Higgineon, Chas. N., Mulvane, Sumner.
Hulse, Hiram, Topeka, Shawnee.
Huston, H. A., Chicago, Ill.
Lux, Geo. P., Topeka, Shawnee.

Lux, Wm. L., Topeka, Shawnee.
McNally, Thos., Wichita (to July).
Mueller, Chas., Wichita (to July).
O'Brien, M., Wichita (to July).
Schermerhorn, F. K., Ogden, Riley.
Schrimscher, W. F., Silver Lake, Shawnee.
Watson, H. W., Topeka, Shawnee.
Wheeler, J. B., Oskaloosa, Jefferson.

Delegates to Thirty-ninth Annual Meeting, December, 1905.

Allen county, H. Klaumann and E. J. Crowell, Iola; alternate, J. T. Tredway, Iola.
Barber county, C A. Blackmore and E. E. Blackmore, Sharon.
Douglas county, D. G. Watt and Sam'l Reynolds, Lawrence; alternates, J. N. Macomb, president Douglas County Horticultural Society, and Wm. Brown, Lawrence.
Leavenworth county, Fred Eason, Lansing, and L. Carl Holman, Leavenworth.
Biley county, A. F. Waugh, president Manhattan Horticultural Society, and A. J. Nicholson, Manhattan.

Sedgwick county, G. W. Collings and W. E. Wickham, Wichita.

Delegates to Thirty-ninth Annual Meeting, December, 1905.

Shawnee county, Mrs. McCracken, Mission, and G. P. Lax, Topeka; alternates F. W. Brooke and J. F. Cecil, North Topeka.

Sumner county, C. N. Higginson and F. C. Schaffer, Lulvane.

Wabaunsee county, Mrs. J. B. Myers and Wm. Rinehart, Eskridge; alternates, Mrs. J. Cousins and R. T. Reynolds, Eskridge.

Wyandotte county, A. V. Wilson and H. S. Wheeler, Muncie.

Green county, Missouri, G. A. Atwood and W. A. Irwin, Springfield.

American Pomological Society, Albert Dickens, Manhattan, and William H. Barnes; alternates, A. Willis, Ottawa, and F. W. Dixon, Holton.

Illinois, A. V. Schermerhorn, State Horticultural Society, and S. N. Black, Apple Growers' Association.

Iowa, Geo. H. Van Houten, Lenox, and Wesley Greene, Secretary State Horticultural Society, Des Moines.

Texas, E. W. Kirkpatrick and Stanley H. Waters.

Constitution of the Society.

Approved and made effective at the thirtieth annual meeting, in December, 1896,

- ARTICLE 1. This association shall be known as THE KANSAS STATE HORTI-CULTURAL SOCIETY.
 - ART. 2. Its object shall be the promotion of horticulture.
- ART. 8. Its membership shall consist of (1) honorary members, persons of distinguished merit in horticulture, elected by a majority vote of the Society; (2) life members, persons paying five dollars to the secretary at one time; and (3) annual members, persons paying one dollar to the secretary, membership of same to cease on the first day of the following annual meeting, unless renewed.
- ART. 4. The legislative body of this Society shall consist of life members, two delegates from each auxiliary society, and annual members of one year's standing.
- ART. 5. Its officers shall be a president, vice-president, secretary, and treasurer, elected by ballot at the annual meetings in even years. They shall serve for the term of two years, or until their successors are elected and qualified. *No officer of this Society, excepting the secretary, shall succeed himself.
- ART. 6. There shall be elected, biennally, a trustee from each congressional district, who shall serve for two years, or until a successor shall have been elected and qualified. No trustee shall succeed himself unless elected by a two-thirds vote. †Trustees in even-numbered districts (congressional) to be elected in even-numbered years, odd-numbered districts in odd-numbered years. The trustees, together with the president, vice-president, secretary, and treasurer, shall constitute an executive board. The president, secretary and treasurer shall constitute the executive committee.
- ART. 7. The terms of its officers and trustees, excepting the secretary and treasurer, shall begin immediately on adjournment of the annual meeting at which they shall be elected; that of the secretary and treasurer shall begin July 1 following their election.
- ART. 8. This Society shall hold its annual meeting in Topeka, during the month of December. Semiannual meetings may be held at such time and place as the executive committee shall determine.
- ART. 9. The official seal of this Society shall consist of a circular disk, and shall contain thereon the following: "Kansas State Horticultural Society, 1869. Ad astra per aspera. Man's first occupation." With appropriate illustration.
- ART. 10. This constitution may be changed or amended by a two-thirds vote of the members present at any annual meeting, provided such change or amendment shall have been submitted and read at the last preceding annual meeting.

^{*}This amendment was made at the thirty-sixth annual meeting, December, 1902, and the president ruled then that it did not include the trustees.

[†]This amendment was made at the thirty-seventh annual meeting, December, 1903.

By-laws of the Society.

As amended and adopted at the thirty-first annual meeting, 1897.

- SECTION 1. It shall be the duty of the president to preside at all meetings of this Society and of the executive board, and perform such other duties as may devolve upon him.
- , SEC. 2. The vice-president shall in the absence or inability of the president perform the duties of said office.
- SEC. 3. It shall be the duty of the secretary to keep a full record of the proceedings of this Society; to have charge of the official seal and keys of the Society's rooms, and full care of all books, papers, furniture, diplomas and other property pertaining to or belonging to this Society; also to represent this Society in all its correspondence. He may, by consent of the executive committee, appoint a deputy and employ necessary help; and shall receive all money due this Society, paying same (except state appropriation) to the treasurer, taking his receipt therefor. He shall encourage and assist in organizing auxiliary societies throughout the state, gather and record statistics, make a complete report of his office at each annual meeting, and compile annually a report of the transactions of this Society for publication.
- SEC. 4. It shall be the duty of the treasurer to receive from the secretary all money (except state appropriation) helonging to this Society, and pay out the same upon order of the secretary, countersigned by the president. He shall keep an account of the funds in his charge, and make an annual report to this Society. At the expiration of his term, he shall turn over to his successor all books, accounts and moneys remaining in his hands or possession.
- SEC. 5. It shall be the duty of the executive committee to assist the secretary in compilation of the report for publication; to perform the duties of the executive board between meetings; supervise the disposal of all money of this Society, and perform such other duties as the executive board may prescribe.
- SEC. 6. The executive board shall have full control of all the affairs of this Society; shall appoint standing committees at the close of each annual meeting for the ensuing year on all subjects of interest to Kansas horticulture; each standing committee to make a written report, through its chairman, to the annual meeting following their appointment. A majority of the executive board may, by ballot, either by mail or in person, fill [for the balance of unexpired term only] any vacancy or vacancies that may occur in said executive board. It shall hold a board meeting on the day preceding the annual meeting, and again immediately after adjournment of the annual meeting.
- SEC. 7. The offices of governor, lieutenant-governor, secretary of state, attorney-general, auditor, treasurer and superintendent of public instruction are hereby made *ex officio* members of this association.
- SEC. 8. By a two-thirds vote of the members present at any annual meeting, these by-laws may be changed or amended.

PROCEEDINGS

OF THE THIRTY-EIGHTH ANNUAL MEETING AND FRUIT DIS-PLAY OF THE KANSAS STATE HORTICULTURAL SOCIETY, DECEMBER 27-29, 1904, IN THE ROOMS OF THE SOCIETY IN THE STATE CAPITOL, TOPEKA.

FIRST DAY-Morning Session.

TUESDAY, December 27, 1804.

The Society was called to order at 9:30 by the president.

PRESIDENT WELLHOUSE: We will now receive reports from the trustees. Mr. Van Orsdol, trustee, will report on the first district.

REPORT OF FRUIT CONDITIONS IN THE FIRST DISTRICT.

By B. F. Van Orsdol, Trustee.

This year has been full of surprises, climatic freaks, bright prospects, blighted hopes, alternating with success and failure. In the early spring everything was bright and cheery; but later a cold wave blasted the prospect. The apple, after abundant blooming, was overtaken by a cold wave, stopping the growth and preventing pollination for eight or ten days, and as a result the young apples fell off by the million and the crop was a failure. Early kinds produced enough fruit to supply near-by markets; but fall and winter apples were not worth packing, excepting Ben Davis, Gano, and York Imperial, and these were not more than one-tenth of a crop.

Strawberries were a good crop and the producer made money from it.

Raspberries, hardly an average yield. They have been under a cloud for several years; too much anthracnose, and plantations not properly cared for; many not having varieties that are proof against rust. The Kansas has given the best results.

Gooseberries, from one-half to a full crop.

Cherries bore an extra-fine crop, especially where there was good drainage. Blackberries, an extra-good yield; the producer, with proper care, realized \$500 or \$600 per acre. Kittatinny gave the best satisfaction.

Peaches: Seedlings gave a full crop, and have undoubtedly proven hardier than budded. Triumph, Greensboro and Family Favorite gave a good crop. Early York, Champion and Mixon were full, but were very unsatisfactory on account of rot. Elberta, Crawford, Smock, Salway and Heath Cling were total failures.

Pears, only a fair crop with considerable blight.

Plums, about one-half crop.

The cold wave was variable in extent and severity; it went in strips,

and in various places would be deflected or elevated; in some orchards there was considerable fruit; in various places several degrees difference in temperature; by changing these conditions a good crop would follow.

We have missed the apple buyers turning up the limbs to note the effects of codling-moth, which he was sure to see if there was one apple affected. We have not had enough apples to attract the buyers.

The market was lower than usual, though a scarcity.

The crop conditions will have a tendency to stop planting.

A great many men go into the fruit business because some man in the neighborhood has made a success of fruit culture. Stop the profits and you stop the planting and the care. Many are failures because they never learned the business and never care to.

In the last few years many new orchards have been started. A few more failures like those of late will stop the planting, and orchards will be neglected; many will become discouraged and go out of the business. There is not much wonder that some get discouraged, when they plant an orchard and wait seven or eight years without results; then add two or three years to that of bad conditions, with a continual fight against weeds, sand-burs rabbits, mice, gophers, borers, codling-moths, tent-caterpillers, cankerworms, fall web-worms, scale, tree-crickets, blight, and a host of other things. This shows that the orchardist must have more knowledge, wider range of thought, more pluck, more perseverance, and, above all, more patience, to succeed, than in almost any other occupation. I say again, is it any wonder that he is discouraged and falls by the wayside?

In looking over the field of horticulture in the first district, we cannot fail to see that there are some things yet necessary to make us pass to the head of the procession. We must be more careful in choosing a location suitable for the orchard; more careful in selecting varieties that have proved themselves fitted for our market and climate; more careful in planting and culture. We must understand the wants of our trees, so that we may apply the proper means for healthy growth; we must become better acquainted with the enemies of the orchard and know better how to prevent and destroy them; we must also know our friends and encourage and protect them. We must prepare our fruit for the market in the most desirable way to please consumers, and should get it to them without so many grabs by the way. How this is to be accomplished is a problem that must yet be worked out, so that the producer and consumer may be brought together for mutual advantage.

REPORT FROM THE SECOND DISTRICT. By B. F. SMITH, Trustee, Lawrence.

Our fruit crop was almost a failure this year. We had a few summer apples. Of fall apples, there were a few Jonathan about Lawrence. Ben Davis were scattering. D. G. Watt, one of our fruit-growers, had 500 trees; he got about fifty bushels. Samuel Reynolds, another of our fruit-men, has about 3000 trees, and got about the same proportion. A few peaches were scattered over the county; nearly all rotted. We thought we would have a good crop, but it turned out to be almost a failure. Those we delivered in town rotted in twenty-four hours. We had no plums worth mentioning; the crop was a failure. All the apples now being used in Lawrence are brought from the East. Pears were almost a failure. In my orchard I had not over

twenty-five bushels. I had seventeen or eighteen varieties at the World's Fair. Strawberries bloomed well and it looked like we would have a good crop; but during the strawberry season it rained nearly all the time, and marketing was an up-hill business. There was not a man who shipped berries out from Lawrence but lost money on them.

Currants, blackberries and raspberries were probably half a crop, and sold at good prices. Crabapples, the best showing for three or four years. We had a better crop of cherries and gooseberries in our district than at any previous time. If I had had ten acres of gooseberries instead of strawberries, I would have made more money. Cherries bloomed out fine, but during the wet weather, afterward, I lost nearly two-thirds of my cherry trees. The varieties lost were mostly Early Richmond.

I have heard it said that about ten years is the limit of the life of a cherry tree. I have two trees near my well planted two try-five years ago. I think them the largest cherry trees in Douglas county.

There are 200 or 300 acres of strawberries in Douglas county. It costs a dollar a crate to care for, pick and get strawberries ready for market. There is no profit in them at a dollar a crate.

REPORT FROM THE THIRD DISTRICT. By F. L. KENOYER, Trustee, Independence,

The past season has been a very unfavorable one for all kinds of fruit. The stone fruits were injured by making too much bud growth the previous winter. The spring freezes and frosts left not more than twenty-five per cent. of the fruit-buds alive. The continued rains of spring and summer were favorable to blight and rot, which reduced the peach crop in most localities to almost an entire failure.

The apple crop was a big one, but the fruit was very defective, excepting in the western part of the district, where the rains did not interfere so much with spraying. Pears were plentiful and of fair quality. Grapes were a full crop. We had an unusually large crop of blackberries and strawberries; but it rained almost continuously throughout June and the first half of July, and fully one-fourth of the crop could not be harvested. The cold weather and hail-storms contributed their share toward reducing both quantity and quality of the fruit. From our fifteen acres of berry plantations we could not get a single crate in fit condition for exhibition at the World's Fair. To offset the bad weather, bad fruit, and bad roads, prices ruled so high throughout the berry season that the crop brought better cash returns than ever before, thanks to our rapidly increasing urban population.

Raspberries could not hold out against so much moisture, and, except new plantations, they succumbed to the anthracnose.

The outlook for next year's fruit crop is not very flattering. Many fruit-trees were injured by the floods, and hundreds of cherry trees were killed. Fruit-buds have ripened up in good shape for the present winter. Most of the berry patches were cultivated but little if at all during the summer. For six weeks in June and July the ground was so water-soaked as to render cultivation impossible.

The prospect for a big crop the coming season is not very good. Our population is increasing at such an enormous rate that prices for all kinds of fruits and vegetables are bound to be high, and the horticulturist will, as

usual, come out on top. This report is perhaps too local to be of much value, but it fairly represents the conditions in the central and eastern part of the district. In the western part, near Winfield, where it is always dryer, conditions were somewhat better.

REPORT OF FRUIT CONDITIONS IN THE FOURTH DISTRICT. By JOHN COUSINS, Trustee, Eskridge.

This has been a very peculiar year for the apple and smaller fruit in Kansas. I have heard that in some parts of the state the apple crop was large and the fruit very fine. I think the apple and smaller fruit did better on sandy soil this year.

The winter was mild, but the spring was wet and cold. We had a killing frost April 16 and a light frost on the 1st day of May; then cold rains. Fruittrees were coming in blossom and some were in full bloom. The bloom of most winter apples was blighted and fell off.

A great many of the apples were damaged by fungoid growth. Early Harvest was not worth picking, and Maiden Blush not much better. Jonathan, Ben Davis, and Smith's Cider, one-third not fit for the market. Some summer and fall varieties were large, smooth, and of good color. Cooper's Early White and Duchess of Oldenburg, 100 per cent.; Sweet Summer Pearmain, 75; Strawberry, 75 (they sold for a dollar per bushel); Jonathan, 70; Ben Davis, 50; Smith's Cider, 10; York Imperial, 50; Janet, 100 (very small size).

Pears: Kieffer, 100 per cent.; Duchess d'Angouleme, 50; Bartlett, 50; Seckel, 90.

Quinces, 90 per cent.

Peaches: Budded, 50 per cent.; seedlings, 100.

Plums: Green Gage, Burbank, and Free Silver, 100 per cent.; Wild Goose, 90.

Cherries: Early Richmond, 100 per cent.

Grapes, 15 per cent.; too much rain in the spring, and too dry in summer. Leaves fell off and fruit dried on the vines. They did better where the ground was sandy.

Blackberries, 100 per cent; dewberries, 50; strawberries, currants, and gooseberries, 100.

REPORT OF FRUIT CONDITIONS IN THE FIFTH DISTRICT.

By WILLIAM CUTTER, Trustee, Junction City.

In reporting for the fifth district I will not lay our short crop of apples to droughty Kansas, but to the heavy rains and frosty nights that we had at blooming-time, which, by their continuation, prevented spraying from doing any good and caused the fruit to drop so there was not one-tenth of a crop upon high land with a clay subsoil, and only about one-third of a crop on low, sandy soil. Mildew and scab were bad upon clay subsoils, while we had some very fine fruit upon bottom land.

Peaches: Our buds were badly thinned out by the winter; still Carman, Triumph, Greensboro, Crosby, Salway and some others set enough for a crop; but wet weather destroyed two-thirds of the fruit on all except Greensboro.

Plums set a good crop, and we had some very fine Europeans and Japans. We sold our first bushel of Japans this year, after twenty years of trial. Cherries bore the best crop we have had for many years. Apricots set well, but all cracked and rotted.

Grapes mildewed some and dropped off, so we did not have over one-fourth of a crop.

Berries bloomed and set well, but were all badly rotted by the wet weather excepting blackberries and the Cardinal raspberries, which bore a full crop.

It has been a great year for all kinds of flowering shrubbery and roses. I never saw them bloom so profusely, come to such perfection, nor last so long; all kinds of fruit-trees, vines and plants appear to be in good condition, and there is no cause for alarm concerning our next year's crop.

REPORT OF FRUIT CONDITIONS IN THE SIXTH DISTRICT.

By J. J. ALEXANDER, Trustee, Norton.

The beginning of the year 1904 was very dry and small fruit suffered badly, especially the strawberry. The plants were at least one-half killed, but when about the 15th of April the rains came, what was left came out nicely, and made good growth and bore fine berries.

Gooseberries came out in fine foliage and abundant bloom and were full of berries of excellent quality. The Houghton and Downing made the best crop, and seem to stand our climate better than other varieties.

Cherries made the best crop we ever had in this district, every tree old enough bearing a full crop. The Early Richmond was in the lead, next the Montmorency, but all of the Morello type were full of fruit of very fine quality. Owing to the backwardness of spring they bloomed late and over a long period, and the fruit ripened in the same way; so we had cherries for thirty or forty days, and of the best quality I ever saw; there were no worms and almost every cherry was perfect.

Peaches commenced to ripen the middle of July; the early varieties were fine—the Alexander, Amsden, and Early Rivers. All of the very early varieties did well and were of excellent quality.

We had a very dry spell that stopped the growth of the mid-season varieties, and they did not mature as they otherwise would have done, the air being so hot and dry it seemed to shrivel and dry them to the pits; therefore they did not ripen up as fine as the earlier varieties, But the rains came in time to mature varieties ripening in September and October. Elberta was the finest I ever saw in size and color and flavor, and Late Crawford was almost as good; in fact, all varieties that ripened after the rains in September were exceptionally fine, there being no worms, which made the fruit very nice, much easier to handle and put up, and of course it keeps better.

Plums: The trees were full of bloom, and bid fair to make a good crop, but the curculio stung many and almost all fell off. The best plums we had were the Abundance and Elwood. They did not suffer from the curculio and bore good crops. The Elwood bore the best I ever saw. Five trees six years from the planting bore about four bushels each, and sold for two dollars per bushel.

Apples were very good for our part of the state, as we are not in the apple belt; but despite this fact we had, at our county fair this fall, as fine specimens as I have seen this year anywhere excepting at the World's Fair in St. Louis. We had twenty-one varieties, all well matured and clear from scars and scab.

All trees that are old enough bore fairly well. I have examined to-day the dormant buds of cherry, peach, plum, apple, and pear, and find none dead. This gives us of the northwest hope for next year's fruit crop.

To sum up, we have had a bountiful crop of fruit, as well as of everything else adapted to our climate.

The people have their cellars full of canned fruits, fruit butters, preserves, and jellies; so we should be and are thankful to our great Creator who doeth all things well. We feel that the big sixth district is in line with the rest of the state, and we believe in the near future we will be considered the best part of Kansas.

REPORT OF FRUIT CONDITIONS IN THE SEVENTH DISTRICT.

By Dr. G. Bohrer, Trustee, Lyons.

Fruit-trees, grape-vines, and berry bushes were never in better condition in southwestern Kansas than they are at the present time.

The apple crop, where the trees received proper care, was from medium to very good; one farmer in Rice county sold from a few over 4000 trees nearly 10,000 bushels of apples. In Rice county the crop of apples has certainly been good. It is reported that there are now about 120,000 bushels of apples in cold storage in Hutchinson. What the crop in Sedgwick and other fruit-growing counties in the seventh district has done I have not been advised to an extent that will warrant me in making any definite statements.

In the matter of plowing and cultivating forest-trees for wind-breaks and hedges I think but little has been done. I think, however, that in the near future, when the people learn what kind of trees to plant, the work of tree planting and forest-tree culture will take a forward movement.

The number of different kinds of trees raised and distributed by the timber station at Dodge City has been too limited and too unsatisfactory to inspire our people with confidence as to what really to plant. Honey-locust seems to be as reliable as any, unless it be the Osage orange; the elm and Red cedar and a number of other hardy trees not having been extensively cultivated at the station and sent out for general planting and culture. It is certainly desirable that our timber stations be required to plant, raise and test thoroughly a much larger variety of trees than has been tried heretofore. The honey-locust is good, as far as it goes, but will not give such general satisfaction as the district demands. The Red cedar will grow on any of our high and dry prairies, and, besides making good windbreaks, will, in time, grow into millions of good posts, and afford a large amount of timber for other purposes, such as poles and fuel. Millions of them should be planted. I am informed that the Arizona pine is well adapted to western Kansas, as it will grow with as little moisture as any tree that can be found. The Red elm has also proven itself to be an excellent drought resister. The catalpa, basswood, Russian mulberry, box-elder and cottonwood will also prove valuable on bottom land where water is near the surface or where they can be irrigated.

It is to be hoped that the State Horticultural Society will urge upon the legislature the importance of requiring our timber stations to test and send out the varieties of trees named and perhaps others; and also put parties who get trees at the stations under obligation properly to plant and cultivate them, or require them to pay for them; in either case they should receive better care.

F. W. DIXON, of Jackson county, was asked to give his experience in strawberry growing. He said: "I do'nt like to say much about strawberries, especially about shipping them, for I do not get enough for them to make me feel very enthusiastic. We had an immense crop of the best strawberries I ever saw. We had in about forty acres. Six acres of Gandy did not produce very well. The bulk came from sixteen acres. We shipped 6000 or 7000 crates, and about as many more went to waste. What we sold brought us good money; yet they were so soft that when they were held over night we could not get much for them. Weather conditions were unusual, such as we never had to face before, there was so much rain; I never saw anything like it. It kept us guessing to know what to expect next. The raspberry crop was only fair, excepting Cardinal; that bore a good crop. Blackberries and dewberries bore good crops. Apples, in some localities, were a failure; others made a pretty fair crop. Where an orchard was planted on rolling land, and the soil a little sandy, the crop was very good. There was a better crop where the apples were sprayed. Of peaches, some varieties bore well. Some places in the county had many peaches, and in others a failure; but trees seven or eight years old stood the weather better than younger ones. Prospects for the coming year are much better, all around. I think the apple trees dropped their leaves too early."

WM. BOOTH: I can tell you about some things in Jefferson county. Ten years ago I put out 6000 Ben Davis. Nine years ago I put out 2000 Gano and 600 Missouri Pippin. I followed the advice of my young friend Wellhouse all the way through in the care of my orchard, doing the best I could, for I was a novice. The result, thus far, has been poverty. I ran in debt, and have been all this time trying to get out. Last spring my trees were a perfect garden of bloom. I felt good, and when I went home I said: "Ma, I think we will have some apples this year." She said, "I hope so." The rains commenced to fall, and we thought it never would stop raining. The next time I went through the orchard (I got through with boots on) I found the blooms dropping off and no fruit setting at all. I went home and said never a word. The apples we got from 8000 or 10,000 bearing trees would not pay for picking. I put them in the cellar, and we had to throw more than half of them to the hogs. My experience in growing apples so far has been a complete failure; yet there is one consolation, and that is, we have lots of company. My Ben Davis and Gano shed their leaves so early that I thought they were dead. I could see the apples, but no leaves. I would like to hope, if there is any comfort in hoping, for a crop the coming year. I shall shut my eyes and wait for results. I shall continue to spray, as heretofore. I started in at the wrong end of my life-when I was old instead of when I was young. I still hope to receive one good apple crop before I pass on to the other side. I shall be glad to report a good crop next year. So far the trees look well and healthy. I notice in spraying that we do not completely destroy the canker-worms, but we have not seen any signs of their work in our orchard for two years. I went through our orchard this fall and found only one bunch in the whole orchard. We have never found a codling-moth [???] and hope we never shall. The worst thing we have to contend with is the rabbits; they are getting in their work now. I do not know that they are more intelligent in Jefferson county than elsewhere. Brother Wellhouse had a remedy he has tried, and I do not know

how many scores or hundreds of rabbits he found next morning. I tried it, but they never touched it. I tried every remedy I possibly could; and day before yesterday I found there was going to be a rabbit hunt, and I offered five dollars to the man who could get the most rabbits out of my orchard. Rabbits are already attacking trees as large around as a stovepipe. I have some trees that I painted with one half-ounce of strychnine and a quart of water—probably 2000—and the rabbits let them alone.

J. W. CURRY: I agree with what Mr. Booth has said. I want to testify that Mr. Booth has tended his orchard splendidly. He is the best man I know of to attend to trees. I was bothered to distraction last year with rabbits. They took the biggest trees I had. They took trees six inches through and damaged a great many of them. I poisoned them with strychnine on apples-cut apples open and put grains of strychnine on them-and found that worked admirably for a time, and then they quit it. Finally they seemed to know better [query: Does the living rabbit reason out the cause of the death of his kin?]; so we just worried through the winter. This year I plowed my orchard—the whole eighty acres. The trees were very large and I plowed as lightly as I could, just skimming the ground between them. In my nine-year-old orchard I circled the trees and plowed close up to them. I do not expect to be bothered much with rabbits this winter. I may be bothered with mice, but I think plowing will drive them out. They will attack trees at the small roots, when forced to hunt for a living. I think plowing is the best remedy for them. I have tried oneeighth of an ounce of strychnine to a gallon of corn, and (scattered) it seems to work very well, in most cases. Where they are about to girdle a tree, I run no risk, but put screen-wire around the tree. They do not like to work around screen-wire, it jags them.

WM. CUTTER: I used always to sow strips of rye through my orchard, and these strips of rye made the best of places to set rabbit traps. You must not expect to catch rabbits in new traps. I tried it last year, and we set one for two weeks before catching a rabbit. I then muddied it all over and it caught them readily.

J. C. BECKLEY, Johnson county: Our apples were pretty much a failure. It was very wet through June and part of July. I think it affected fruittrees of all kinds more or less. Apples began to drop off freely when about the size of the end of your thumb, until they were so thinned out that there was probably not over one-tenth of a crop. Our apples were practically ruined by scab. We had a good show of peaches to start with, but after they were nearly grown they began to rot and we lost nearly the whole crop, in nearly all over Miami and pretty much all over Johnson counties. Cherries were a pretty good crop, but were damaged by wet weather, which made many of them almost worthless. Plums, very few were worth anything; what few escaped from the effects of the wet weather dropped off and were so wormy they were of little value. Quinces did pretty well this year in our county. It happened to be pretty wet, and they require a cool, damp soil. I had a great many. About the time they matured, they, like the peaches, took to rotting, and we lost most of them. Currants did well where planted on the north side of a fence and well mulched. I do not think I ever saw a larger crop of gooseberries. The bushes just lay flat on the ground. Strawberries did not do well in Johnson county, in my portion of it, at any rate. Blackberries did pretty well. The best blackberries I had were from bushes I dug up along a roadside two or three years ago. I set out twenty-five or thirty, just as an experiment, to see what cultivation would do, and they bore the largest and finest blackberries I ever raised. I do not think I will ever buy any more blackberries from a nursery. Raspberries did very well. In regard to rabbits: Down in my part of the country, where they take interest enough, they usually wrap the young trees, and between the shotgun and wrapping and trapping we reduce the rabbits, so that we get through the winter with little damage to our trees.

E. G. HOOVER, Sedgwick county: We think we live in the paradise of Kansas, and will have the biggest orchards in the state within ten years, and that the whole valley will be covered with apple trees. Seven years ago I took charge of the Hoover orchard, which, at that time, was a mass of limbs and weeds; to-day it is a very nice place. In the last seven years we have never had even a half failure of apples. This year we have 6000 bushels in cold storage. We have not had a failure in that county since I have been in the apple business. Our trees are healthy. The last three years have been too wet. We are having some scab in our county. This year is the first to amount to anything. Mr. Yaggy has the same opinion we had, that his county (Reno) is immune, but I see some of the apples are beginning to scab. I came to this meeting to hear spraying discussed, and to get onto it as much as possible. I think we will have a big crop another year. Peach trees were looking well when I left.

GEO. A. BLAIR, Sumner county: I can only report from our vicinity. So far as I know, and I have made some little examination, our trees are in good condition for next year's crop. Peaches look well, and apples are looking well. Orchards that have been sprayed and well taken care of produce good results.

FRANK YAW, Sedgwick county: I will say that in our part of the country we had a very fair crop of apples. We had a frost in April that injured plums badly. I had scarcely any plums at all; what few I did have came through the flood. I have a farm of twenty acres, all in fruit. You remember what a frost we had in April. We had two hail-storms and a flood. The peach crop was very good, but right when my peaches were ripening came the flood. Cherries were a good crop. I had a fine cherry orchard, but after the cherries were harvested the flood came and killed the trees.

- E. H. COOLEY, Sedgwick county: We had a very fair crop of apples. Fruit-growers who took care of their orchards did not complain much. They had nice fruit and it hung on the trees. We have begun to grow strawberries in our vicinity, and what grew were sold at a profit. Good home-grown sold at \$1.75 to \$2 per crate. Gooseberries were a good crop. Plums were only fair in our neighborhood. Early peaches were a good crop, but late peaches rotted badly. The prospect for a good fruit crop next year is fair.
- C. A. BLACKMORE: In Barber county this year we had a failure of fruit. It is about the only failure we have had, that I remember, in eleven years. Apples, perhaps on the older trees, gave us about fifty per cent. of a crop. The trees seemed to be very healthy, and remained in full leaf until late this fall. Our peach crop was light. We have been in the habit of shipping many thousand bushels, but this year we shipped very few. Hale's

Early and Early Rivers were full. Outside of these varieties I do not think there was any that gave a full crop. Cherries bore an immense crop. Gooseberries, good. I was uneasy about our peach trees this year. It was the worst year we ever had on them. If we had had a full crop of peaches they would not have matured. The leaves took rust and scab and began falling off; this left three or four inches on the ends of the twigs remaining green. About August the trees became pretty brown, but later on they began to revive, and the leaves seemed to hang awhile, and by fall we had new, green foliage, and the trees have made from six inches to two feet of growth, and look as well as I ever saw them at this time of the year. I hope that next year we will have a fine crop of peaches. The rabbits are quite a pest, but they only give me trouble on one- and two-year-old trees, either peaches or apples. I generally kill a few rabbits, slit them with a knife, and rub the trees with the carcass. By doing this I am not bothered with rabbits. I keep my orchard clean, having no rubbish about.

A. B. SMITH, Shawnee county: We had a large crop of cherries. They were a success. We had, in the aggregate, some fifteen tons from 1000 trees. It was the largest crop we have ever had. It seems strange to me that the dry years should be a success in raising cherries, and the wet years should be so successful, too. It seems to me that the cherry is the fruit for this country. I know the cherry requires a dry climate. The Early Richmond is almost the only variety I have. Of course, I have some Montmorency, but they did not do as well as usual this year. The wet weather so affected the trees that they lost their foliage. They ought to have good drainage. Even if the land is well drained, if the water seeps down from higher levels, it has a bad effect. My Morellos were next best to the Richmonds.

ANNUAL REPORT OF MANHATTAN HORTICULTUAL SOCIETY. By J. B. HANEY, Secretary.

The past year, 1904, has been one to be remembered by the fruit-growers of this locality for the intricate problems that have arisen and remain unsolved.

The subjects discussed by this Society have been of wide scope and full of interesting facts. At the January meeting, Judge Sam Kimble, with enthusiasm born of confidence in the success of the scheme if undertaken, advocated the beautifying of the barren hills about the city with Scotch and Austrian pines. Professor Willard treated of "The Chemical Value of Fruits as Food." William H. Barnes, secretary of the State Society, gave an interesting address on "Planning for the Year's Work in Horticulture."

The February meeting was made an interesting one by an address by Dr. A. F. Waugh, on "Horticultural Observations on the Pacific Slope"; a paper by S. J. Norton, on "Gardening for Profit," and an address by Prof. L. F. Paull, on "The Horticultural Development of Porto Rico."

The time of the March meeting was very profitably given to a demonstration of plant propagation, by William Baxter and a class in floriculture, and a description of dark forcing of rhubarb, by A. J. Nicholson.

At the April session, Prof. E. A. Popenoe addressed the Society on the subject of "Iris Culture"; Prof. Albert Dickens, on "Celery Culture," and Mr. T. C. Wells, on "The Adornment of the Home Premises."

In May, a special meeting of the Society, in connection with other socie-

ties and organizations, was held in Commercial Club hall, to consider the improvement of the city and its surroundings. This meeting was addressed by Judge Kimble, urging the planting of evergreens upon the unsightly bluffs about the city, the better keeping of lawns and 'parks, the beautifying of the city park, the destruction of weeds and the removal of rubbish from streets and vacant lots. Mr. Geo. S. Murphey, representing the Commercial Club, spoke upon "Improvement as an Investment." Prof. Albert Dickens made suggestions for the adornment of rural homes, and Prof. Wm. L. Hall, of the Bureau of Forestry, spoke of tree planting in general. Papers were read by Mrs. O. H. Halstead, on "Civic Pride"; Mrs. Esther Winne, on "The Ideal Village," and Mrs. Holroyd, on "Landscapegardening."

The meeting of July was held at the residence of Judge Sam Kimble, at which the experiences of the season were discussed by Mrs. Kimble, Professor Dickens, and others. The tendency of the early freestone peaches to cling to the pit was discussed, but no conclusion as to the cause was reached. One of the most peculiar and perplexing occurrences of the season was the destruction in many of the orchards of the best varieties of winter apples by late frosts and blight, while the early summer and fall varieties were almost free from injury.

The condition of the peach crop was much the same, the early varieties being fairly good, but the later ones almost worthless. On the whole, orchard products have not been very profitable.

Since July, on account of the absence of officers and members at the state and world's fairs, no meetings have been held.

"What shall we do in 1905?" is a question which, let us hope, may be answered with gratifying results.

President Wellhouse appointed the following committees:

Credentials: G. A. Blair, J. W. Curry, and John Brazelton.

Membership: J. L. Williams, S. M. Crow, and C. C. Cook.

Exhibits: Wm. Cutter, Edwin Snyder, and J. C. Beckley.

Auditing: F. W. Dixon, B. F. Pancoast, and W. D. Cellar.

Obituary and Resolutions: L. A. Goodman, Prof. E. A. Popenoe, and Edwin Snyder.

FRUIT PACKAGES.

By T. E. ARMSTRONG, Topeka.

Ever since Mother Eve began picking fruit there has been more or less agitation as to the best method of preserving it for future use. Fruit packing has now reached such a degree of perfection as completely to bewilder an amateur, and the results can be attested by the weary traveler on his long journey in an attempt to find the north pole or the equally hazardous undertaking of crossing a barren desert. The always-ready-and-fresh fruit is with him, because of the improved package in which it is placed. In the beginning the process was very crude and did not succeed to any appreciable extent, but to-day the business of packing and preserving fruit is a most important one, of large and growing proportions, and is accompanied with satisfactory results.

I presume that the package that would most interest this convention would be one for apples, as that is the principal fruit crop in this section of

the country. Therefore, I shall confine myself to a discussion of this branch of the subject.

Orchardists used to haul their apples to town in a common lumber wagon, loose, and with no protection; consequently, they were more or less bruised and totally unfit for storage purposes. Now, they are carefully picked from the tree, placed on a sorting-table, and from there directly placed in the storing package, and often transferred immediately to the cold-storage plant.

The question is being agitated to a considerable extent as to which is the better package, the barrel or the box, and were I to answer it from a manufacturer's point of view I would say the box, because our machinery would simply cut out the lumber and the orchardist would nail up the box, while with the barrel we have to manufacture the material, and then employ experts to make the barrel; and in case of a good crop they often become very independent and demand exorbitant prices for their labor. But if, for instance, we have contracted to furnish a large number of barrels, what are we to do? We are at their mercy.

This is from a manufacturer's standpoint, but this does not seem to agree with the opinion of the shipper, as the report of the International Apple Shippers' Association will testify. This report for the fall of 1904, embracing returns from the United States, Canada, and Nova Scotia, gives the number of barrels used during the season as 4,369,005, and the number of boxes as 95,000, and the most of these boxes were put up in the districts where they have never used barrels, namely, the West and Northwest.

It is not necessary to send your money to Arkansas and Kentucky or any other foreign clime to get packages, as there is plenty of timber and machinery in the borders of our own state to make the packages for our apples for several years to come, and although our experience is limited in the manufacture of boxes, I suppose that the same kind of timber as that used in the manufacture of barrels would do. In fact, the claim has been made that cottonwood is the best material for the purpose.

Boxes, as well as barrels, should have a standard of measure instead of supposed weight, for the reason that there is such a difference in the weight of different varieties of apples. Take, for instance, a measured bushel of Ben Davis apples and a measured bushels of Genets, and the difference is considerable, as any orchardist will know. Take a box, say of 9½ by 10½ by 20½ inches inside measurement, which is the present bushel box, or any other standard measure that would be just and proper, and the purchaser would come nearer to getting his money's worth than is now the case. We are anticipating a demand for a "short box," as we have always had a demand for a "short barrel."

It is my opinion that there should be a little legislation governing the size of packages. The first call in the fall is for 11-peck barrels, these for the early fall apples. Then for the winter apples they want a 3-bushel barrel, and in the spring an 11-peck barrel again, and even a 10-peck, each of which is a barrel of apples and sells for such. The only difference in the size of apple barrels is in the head. For the 3-bushel barrel it requires a 17½-inch head; for an 11-peck, a 16½-inch head, and for a 10-peck barrel a 15½-inch head. But the greatest difference in packages is shown in the sweet-potato business. When we first began shipping sweet potatoes it required a 3-bushel barrel, next an 11-peck, later a 10-peck, and now we even have

calls for a 141-inch head, which is less than the size used for cranberry barrels.

The New Jersey people have a pretty good law governing the packing of their cranberries; they must be in a barrel which holds 100 quarts and takes a 16½-inch head. Now these people have a large and steady sale for their fruit, because of the fact that a buyer knows when he buys a car of cranberries packed in New Jersey he will get 100 quarts to the barrel. Then he can ship them to another state, transfer them to 90-quart barrels, or less, and have a very nice margin on the deal.

The packing of apples should be uniform throughout; that is, a package should contain apples of the same or nearly the same size, and not have small ones in the center and on the bottom, and large ones on top. That suggestion reminds me of a little experience I had in Denver. It happened a number of years ago when apples were scarce. I had sold a car to one of the large dealers there, who, by the way, was a very nice gentleman, notwithstanding the fact that he was a commission merchant. The dray had hauled a load, and the men were busy opening up the barrels for show and filling orders. A customer came in and began taking the facers off one of the barrels, and getting down towards the center, when the proprietor observed: "Mr. Jones, if you are looking for large, fine apples, you will find they are just as nice on top as anywhere." I thought the idea very suggestive, and it made an impression on me which I have never forgotten. These facts go to show that legislation is needed that Kansas may have a name for an honest pack, giving a bushel for a bushel, thereby gaining the confidence of the buyer and reaping the full benefit of our wonderfully productive orchards.

There are instances where, in my opinion, the box is superior to the barrel. With extra-fancy fruit, or fruit intended for a small market, such as fruit-stands, restaurants, etc., the box is the better. In such cases the dealer can make a better showing than with fruit packed in barrels. But for No. 1 fruit down to choice, and for export and long-distance transportation, I think the trade will demand barrels, as they are less liable to be roughly handled.

Horticulture and agriculture are very closely allied, standing in relation to each other as man and wife. Agriculture represents sturdy manhood, while horticulture suggests the beautiful, accomplished woman, and these industries are here represented by two of the best secretaries, of the best state, of the best union of states the sun ever shone upon.

SECRETARY BARNES: Along the line of Mr. Armstrong's remarks, I was in the office, in New York city, of one of the largest shippers of apples to Europe, and he asked me if we ever "stovepiped" our apples in the West. I asked him to explain, and he said that up among the good growers of New York state they stovepiped their apples. They have an iron pipe made three or four inches smaller around than the barrel, and, after putting facings in the bottom of the barrel, they put that pipe in, and, after dropping good apples around the outside of that pipe, they fill up the center with smaller ones, and then pull out the pipe. That stovepipe business got into somebody's head and he invented a measure that is used by the grocers.

WM. BOOTH: What are the dimensions of a three-bushel barrel?

Mr. Armstrong: Twenty-eight and one-half-inch stave, seventeen and one-eighth-inch head.

WM. BOOTH: With reference to boxes, what is the legal measurement of the bushel box as used?

MR. ARMSTRONG: Nine and three-fourths by ten and three-fourths by twenty and three-fourths inches, inside measure.

S. P. Bailey: Do these boxes you speak of hold a standard bushel, or are they measured by the standard that some of the merchants use? Will that hold an honest bushel?

Mr. Armstrong: I do not know, but it is as near the standard as anything I know of.

PRESIDENT WELLHOUSE: We have a law regulating the weight of apples. Forty-eight pounds is the legal weight for a bushel of apples. That is all the law we have on measurement. Mr. Armstrong has just started a veneering machine, at a pretty heavy expense, here in Topeka, with which he cuts out veneering, staves, boards for boxes, etc., and it is a good institution. He can either cut out staves or material for boxes, and we are glad to get his factory here.

Mr. VAN ORSDOL: In the standard bushel the Janet weighs forty-nine or fifty pounds; Limber Twigs a little more. We cannot afford to make different-sized barrels to hold the bushel. To adjust that matter we must have some standard of measure that will average all of them. I suppose forty-eight pounds would be an average.

PRESIDENT WELLHOUSE: As to measurement, it is a very difficult thing to get at, because it is hard to get at the exact weight of fruit. It is hard to get out an exact package. We have sold a great many apples in the orchard-refuse apples at cheap rates-and we have measured the wagonboxes, and figure by the cubic foot. I give one and one-half cubic feet for a bushel of apples, and that has always averaged fifty pounds. The last few years we have sold our cider apples to cider and vinegar men, in Leavenworth mostly, and they pay us so much per hundred pounds, railroad weights. I find that we get more for them that way than by the cubic foot. We let a man go into our orchard and fill his wagon. A farm wagon holds a little more than one bushel to the (perpendicular) inch. At any rate one and one-half cubic feet is a convenient way of measuring. We do not always sell our fruit by either weight or measure, but just as we can agree with the buyer. But packages are one of the most interesting things we have to study. As Mr. Armstrong says, when the coopers strike, which is when we have a big crop of apples, we have a time of it. I am glad if we can get up a box that will answer the purpose of a barrel. The box is a little cheaper than a barrel. Cheap labor will nail up these boxes, while it requires skilled men to set up the barrel. This year, out west around Hutchinson, they are using boxes entirely, and if we can get into that way I shall be glad.

S. P. BAILEY: Is the box a better package for choice apples than the barrel?

MR. ARMSTRONG: In my paper I made the remark that I thought very choice apples should be shipped in barrels, but for fancy and for small

markets, for restaurants and stands, etc., they would always want boxes, but for export and long distances they would want barrels.

- S. P. BAILEY: While at the World's Fair I found some Western growers of fancy apples used boxes.
- F. W. DIXON: Boxes require less room in storage than barrels. I found one year, in storing apples, that boxes were easier handled to get into and out of storage. Another item, in packing boxes it takes skilled labor. You can use unskilled labor to pack barrels better than to pack boxes.
 - B. F. SMITH: What is the cost of a barrel or box knocked down?
- MR. ARMSTRONG: So far as we have been able to get prices, I think the boxes are 10½ cents, and the barrels we have sold this year as low as 33 cents. We do not sell them knocked down. We are manufacturing the material to make barrels, with the exception of the hoops.
- J. J. ALEXANDER: The boxes are much more satisfactory to the public, as they are packed better. They put in less cull apples. There is less chance to face them, and they handle better. If any one comes in and wants a bushel of apples, you have them all measured up, and do not have to bruise them by handling. I handled two car-loads last winter, and I found less loss where they were packed in boxes.
- G. A. BLAIR: In regard to packing apples in boxes: Fancy No. 1, etc., I cannot distinguish exactly what that would mean; whether you take into consideration the size, or whether it could be a fancy, small apple. My experience in packing in boxes has been very limited, and I have found it very hard to get the layers to fit the box exactly. I have noticed the apples shipped into our town in boxes are small apples. They are all undersized apples. I would like to know whether you can pack a good, big apple in boxes as well as small ones? [Uniformity is the main requisite.—Sec.]
- E. G. HOOVER: In the seven years I have been packing apples we have used barrels entirely until this year, but I think from now on we will use boxes. I think there is some mistake, however, in the claim that better apples are packed in boxes than in barrels. You can pack just as poor apples in boxes as in barrels. I find they can be faced as well as in barrels. There is not very much difference in handling either boxes or barrels in storage, for the reason that if a barrel is placed in storage it should not be moved until ready to take out to market; the same with boxes. If moved, the contact with warmer air naturally takes away the preservative of the apples and lets them decay. There is a time coming when we will have to cut out the apples we are selling now as first-class apples. There is a gentleman here who says you cannot pack apples in barrels as well as in boxes. If he will come to Wichita I will show him as fine a barrel of apples as he ever saw packed in boxes.

COLD STORAGE.

By MR. ENNIS, from the Continental Cold Storage Company, Topeka.

I do not think there is anything or any invention that has had a larger effect on the producer of perishable products than cold storage. Formerly when these perishable products matured they were placed on the market, excepting a relatively small proportion, and thus at the day of greatest production the market was glutted and the producer realized only minimum prices on his productions. Formerly apples were practically all marketed at maturity. Now apples may be placed in storage and may be carried for four, five, six and even seven months before being placed on the table of the consumer. It means that the producer gets a good price for his products in the fall of the year, the winter of the year, or the spring of the year. One great trouble has been that the producer has not, I think, realized the great value of the cold storage to him. It is our purpose, as far as possible, to have the producer realize that the interests of the cold-storage man and the interests of the grower are equal.

In a poor year there may be very little of our storage capacity taken. The thought strikes me-not that we figure on taking away the profits of the commission man at all—but why could we not bring the commission man, the consumer and the producer together, and get the producer the very highest price for his product? We have that very thought, and it may be possible that during the coming year we may be able to bring these people into closer touch with each other. Now, in that way we feel that we can help the producer as well as help ourselves. Our interests are mutual, and if we can get the producer to patronize the cold storage it will not only help us but will help him. Last May I took a barrel of apples out of cold storage in just as fine condition as it was when picked off the tree. Formerly the producer would possibly get thirty, forty or fifty cents per bushel for his apples at the time of gathering, but now, if he can carry them over to the spring of the year, he will get from seventy-five cents to a dollar. At the present time I understand the very best apples are retailing for \$1.50 per bushel. I think there is nothing the Kansas State Horticultural Society can do that will be better for its members than to get every member interested in cold storage.

- J. A. THOMPSON: Our people sent their apple crop right to cold storage, and at cold storage the very thing takes place that the speaker alluded to. The apples are right on the market from the very day they are put in, ready for an advantageous sale. You have to be very careful in packing, and it does not pay to send anything but very nice fruit to cold storage, although in some years it really paid us to put our second quality of apples in cold storage; they will keep for a time, but not so well. The last crop of Jonathans we had we put about 450 bushels in bushel boxes, and we sold those about Christmas time for an average of \$1.60 a box. That would not have been possible without cold storage. I think all we have to do is to advertise it more, and orchardists will, as they pick their apples, put them in cold storage. It also prevents the market from being glutted.
- J. M. IRVIN: Along in the fall I had a friend at St. Joe who had an exceptionally good crop of Wealthys. On writing to different markets, he found they were full everywhere, and he was not offered more than forty

or fifty cents in the orchard by shippers. He put 800 bushels in cold storage. I thought he put in only No. 1's, but I found he put in some No. 2's also. I wrote him some three or four weeks ago, asking how he got out, and he drove around and informed me that they were selling well. As Mr. Thompson has said, it shows that by using cold storage, even apples that ripen as early as September can be held over. If you can hold your apples over and make the difference between one and four dollars per barrel, for an expenditure of fifty cents, it is pretty good money.

PRESIDENT WELLHOUSE: We put a lot of York Imperials in cold storage this fall. They kept in cold storage, and in the cellar they went right down, no good at all, and that is something unusual for the York Imperial. The impression has been, heretofore, that the York Imperial would not keep in cold storage. We put one car in cold storage and one car in the cellar, and those in the cellar did not bring us anything hardly. We have not sold those in cold storage yet. We put them in cold storage in the latter part of September. Cold storage with us simply stretches out the season for six months. We always have sold in the fall, but in cold storage it simply stretches out the market for at least six months.

MR. ENNIS: I would judge the different varieties of apples being stored are in the experimental state. It would give us pleasure to give storage room for say forty or fifty bushels of apples for the purpose of finding out the storing qualities of apples that have not been tried. We will give a portion of our storage room over to this association, so you can learn what varieties of apples will be best stored. That which is found true of these early ripening apples, spoken of, may be found true of other grades of apples that we have not been in the habit of storing. If this association would like to experiment with the different grades and varieties of apples, we will be glad to cooperate with you.

Mr. Thompson: The York Imperial has been of late years with us the most productive apple in our orchard. But the question of cold storage has been a puzzle to us. For, while the Jonathan kept perfectly, the York Imperial did not spoil, but the skin turned brown, and what is called scald affected them, while those at home in the cellar were good. Cold storage is to some extent yet in the experimental stage. I think the York Imperial needs a little different temperature from the Jonathan, possibly not as cold. Our only objection to the York Imperial was the fact that it was subject to scald in cold storage. It kept pretty well until about the middle of January, and then this scald appeared. The last time we had York Imperials, two years ago, I had charge of them, and I examined them as often as two or three times a week until they were taken out, and knew just the condition they were in. I think they should have come out by the middle of December at the farthest. After that time they began to take on this brown color. They did not keep in good condition until the middle of January. Of the early ripening varieties in cold storage the Maiden Blush is the finest.

FRANK HOLSINGER: When we opened our York Imperials [at St. Louis] we found considerable scald on them. They had been treated exactly the same as other apples. We found some scald on most of the other varieties, but the York Imperials were badly scalded. I went to the West Virginia display and talked with the party in charge, and he showed me some York Imperials, and there was no scald on them. He said: "We put them in the

cellar, and they stayed in the cellar until six weeks ago" (that was about the 1st of May); "then we took them out and brought them here and put them immediately into cold storage." I believe that the time of ripening has no influence on the storage of an apple; that you can keep it for any length of time. We found that where you can secure an even temperature that you can keep apples, possibly any variety of them, for any length of time. But you can take Maiden Blush, Grimes's Golden and Jonathan apples, which we said should be taken off early, and put them in cold storage and keep them until the first of May, June, July, or any other future time.

WM. CUTTER: There is no apple that varies so much with the age of the tree as the York Imperial. The young trees bear the largest apples. When they get older they bear fuller, but the apples are of medium size and lighter color.

Mr. Van Orsdol: All seem to think that it depends on the apple being placed in cold storage in proper condition, and the temperature kept right. They do not believe that perhaps the difficulty is in the cold storage as well as in the manner of storing. It is as much in keeping cold storage right as in getting the apples in right. A different temperature must be used in keeping different varieties of apples. I believe that cold-storage men, and cold storage generally, must be better prepared for keeping than they are to-day. They do not know enough about the business. They must understand it better.

S. P. BAILEY: What simple form of cool or cold storage can the ordinary fruit-grower provide with profit? I notice some have ice-houses in which they store apples. Does any one here know anything about it?

FRANK COPE: I have had some experience in keeping apples in caves. I have some Jonathans in a dugout now. I have successfully kept them into April. I generally pick such fruit as late as possible. I leave that cave open as late as possible. I let it get as cold as possible, and keep it that way. I cannot keep potatoes in the same cave. I saw a way in which farmers could keep apples. It was a dugout built of a rock wall on three sides, with an ice-house or place for ice in front, with an alley-way between the wall and the ice-house, and it was claimed that the temperature from the ice would penetrate the walls of the cave, and in that way apples could be kept well into the summer.

THE FRUIT COMMISSION BUSINESS.

By FRANK COPE, Topeka.

The commission man and the horticulturist stand in an interdependent relationship one to the other. It is fitting, therefore, that the commission interests should be represented in a horticultural program. You gentlemen of the Horticultural Society are vitally interested in producing fruit of the highest quality and the largest quantity possible. It, then, becomes the duty of the commission man to step in between you and the consuming public and to obtain for you the best market possible for your fruit. The commission man, therefore, acts as an intermediary between the grower and the public.

As is the fate of all go-betweens, the burden of the sins of omission and commission from both sides falls upon his head. He must, therefore, if he would be successful, from a financial standpoint, or enjoy a fair degree of the peace of mind or of mental tranquillity absolutely essential to the highest enjoyment of life, make a careful study of the view-point and the interests of the grower on the one hand and the consumer on the other. He should develop the qualities that mark the make-up of the philosopher, as well as those that characterize a level-headed business man. Incidentally, he should cultivate a patience that is inexhaustible and the refined cunning that is the essential requisite of the successful diplomat.

All commission men, whatever commodities they handle, need to possess the qualities I have enumerated, but he who handles fruit should possess them in even larger measure than others. This is because of the peculiar nature of the product he handles. It is subject to loss and risks on account of its perishable nature to which other products of the soil are not liable—at least, in the same degree. Fruit, as a rule, must be handled expeditiously, if handled at all. Nothing deteriorates so rapidly in value or suffers to such an extent from delay in transit. Twenty-four hours' delay, or even less, may mean the difference between a small fortune to the grower of luscious berries, or other fruit shipped in a dead-ripe condition, and returns not sufficient to cover express charges.

Here generally marks the beginning of the fruit commission man's troubles, or his opportunities to develop the qualities of the diplomat. He may acquire the backbone to deal with the mighty railroad and express magnates. But he must stand up for his rights in thunder tones. He must hold his own against the railway officials who, in the words of Shakespeare,

"Speak the word of promise to the ear, And break it to our hope."

Then, the fruit commission man must make a study of packing. It devolves upon him to conduct an educational campaign in behalf of proper packing. The way fruits are packed—the size and nature of the box, crate or package in which they are packed—means the difference, frequently, between merely nominal returns and the obtaining of the highest price the market affords. A man who handles fruit must be able to inform the grower or shipper as to the kind of box or package in which he should ship his fruit so as to arrive in the best marketable condition.

The commission man should study the needs and wishes of the consuming public in order that he may intelligently meet them. A question that is attracting a great deal of interest just now pertains to apples—whether they should be shipped in boxes or barrels.

Now, of course, there are at least two sides to this question. The packing of the yield of an immense orchard in boxes is a serious proposition to the grower. The time consumed and the trouble involved are by no means inconsiderable. On the other hand are the thousands upon thousands of small consumers in the great cities to be considered. How many of these there are who would buy in small quantities but would not buy a barrel of apples. Now, it is obviously to the advantage of the grower to accommodate himself to this condition and so pack his fruit as to make it easier for the commission man to dispose of large quantities to advantage. This is one instance that strongly demonstrates the proposition that a commission man must be broad-gauged. His mind must be of sufficient caliber to weigh both sides of the question, when the interests of the grower or shipper and the consuming public apparently conflict.

As growers are so largely represented in this gathering, it is well that they should be admonished, "line upon line, precept upon precept," upon the importance of proper packing. It is preeminently one of the great issues of the day in the trade. Pres. H. M. Dunlap, in his address before the Apple Growers' Congress, at St. Louis last month, said: "What we need to learn most in this section of the country is to pack fruit properly. It is necessary, if we are to have the best returns for our labor and receive the best returns for our fruit. We can pack it cheaper, and when we learn to do it as well, the buyer will be as ready to pay our price as though he did the packing, for the reason that he does not primarily care for the work, and would gladly pay us a better price if he can get the same quality of fruit that he gets when he does the packing. The buyer first went into the orchard to do the packing because it was the only way in which he could get his fruit packed in a manner that was satisfactory at selling time. The future buyer will visit the orchards before the crop is gathered, and the grower will do the packing upon lines agreed upon beforehand. Differences as to grades between the grower and the buyer have largely been due to the inexperience of the growers as to what was right."

The fruit commission man who expects to be in the front of the procession must be well informed on these questions I have indicated, as well as keep posted on all market conditions, which makes the careful reading of an authority like *The Packer* absolutely essential.

Another essential to success in this business is promptness in making returns to the grower or shipper, or making explanations when returns are unsatisfactory. Tardiness in correspondence naturally begets suspicion. A valuable asset of the commission man is promptness in correspondence of all kinds. "Delays are dangerous," is a well-known maxim, which is peculiarly true of our business. If anything has gone wrong, either through the fault of the railroad or of the shipper, so that the hopes of the latter for fair returns are blasted, inform him at once. Delay never helps matters. Many a commission man has brought upon himself unmerited suspicion of being a rascal whose worst fault was procrastination in correspondence. Let commission men beware of this rock.

Need I speak of the necessity of square dealing and absolute honesty on the part of the commission men? Surely not, before this intelligent body, made up of honest men.

In conclusion, let me appeal to horticulturists and fruit-growers to do their part towards preventing friction between themselves and the commission man, by a careful study of the problems of growing, grading and packing fruit; to the consuming public, to be patient in dealing with the commission man, realizing the peculiar mediatorial position in which he is placed; and to all alike, I plead for justice, charity, and that careful allowance for man's imperfection which is the sure preventive of all friction between the three classes who are affected by the fruit commission business.

- B. F. SMITH: I stand up for the commission man. I have always found I came out better with the commission man than with the merchants in one-horse towns. I seldom get the worst of it from a commission man. I can say from my own experience that I had worse luck filling orders for merchants in the country towns than I ever did with commission men.
 - A. OBERNDORF: I have had very little experience with commission mer-

chants. I have the very best of feeling for them, but I did not come out first class in my dealings with them, but I never had any dealings with Topeka commission merchants. I have shipped a little over 7000 baskets of grapes during the summer to country merchants, and have never received a single complaint.

- J. L. WILLIAMS: I found many years ago that some commission men were all right and others were not. Fully twenty-five years ago I made up my mind that I must know something about a commission man before I shipped anything to him. While I am living now right near Kansas City, where I have no occasion to deal with commission men, because my fruit goes right on the market in town or on the general market at Fifth and Main streets, I find that every single week there are exposed four, five or more commission men who are doing up the people.
- B. F. SMITH: I always go to my banker before I commence shipping to commission men anywhere, to find out their standing—whether they are honest and all right. Now, my first shipment was to Denver, in 1886. Up to that time I was able to sell my berries in Lawrence at fair prices. After I gathered my second picking, in 1886, they [Lawrence buyers] said they bought them that day for \$2, and would buy to-morrow for \$1.50. So I went around to the express office. I had been introduced to a commission man in Denver. I made nine shipments to Mr. Bowen [Denver], and he got \$7 a crate; and after express and commission was taken out it left me \$5.50. Later on I had a good market at Lincoln, and never lost a dollar on anything. It was always more satisfactory with a commission man than with a country merchant.
- J. A. Thompson: My experience has been that commission men can make better sales than a farmer can. They can ask prices for anything that a farmer can hardly have the nerve to ask, and they get it, too. My experience with them has been satisfactory.

FRANK COPE: I want to say just a word in reference to what these gentlemen have said in regard to the commission men. Mr. Smith refers to having shipped to the country merchant, but with better success to the commission men. The commission man is always in a position to take charge of and market shipments into the city. You know, when a low price is established in a country town of from 300 to 3000 or 4000, it is almost impossible to raise it up again. On the larger markets the trade must have berries any way. To illustrate, I had a little experience a few years ago in Omaha. I was quite a stranger there. I noticed that berries, the latter part of the week, had fallen very little in price. A friend of mine in Kansas City, Mr. Smeltzer, shipped up thirty cases to me there without saying anything about it by wire or mail, and I did not know they were coming; but someone came around to where I was stopping, and said: "Frank, don't you know you have some berries down at the depot?" I replied that I did not. "What do you want for them?" "I do not know what they are worth." By the time I got down to the depot there were not less than eight or ten of the best grocerymen there, and every little bit one would ask: "Well, what are you going to charge me for one or two or five crates?" We got the berries on wagons and drove up in front of Mr. Hanson's store, and before I had set my price on them the men had picked out all but a few crates.

Then they wanted to know what I was going to charge them. I made the price, and there was not a man on the ground who kicked. If a farmer comes in and drives up to a grocery store and offers his berries, the grocer will say, "Well, I paid two and a quarter Friday, but I have not bought any since." We know every day what comes on the market, and we can gage our prices accordingly. Often we find berries come in here in the morning on the first train. We set a price. Some fellow says, "I am going to have so many berries in on the next train," and it is our practice to make a man show them up before we charge our price.

F. W. DIXON: I want to say the average fruit-grower of to-day, the commercial fruit-grower, keeps the markets of the little towns about as well in hand as the commission men. When fruit-packing time comes I do nothing else but sell. I keep in touch with all of the places every day. I have lots of fruit to sell and I must do it. I have gall enough to ask "any old price." I say if I do the work, and spend lots of money to raise fruit, I have the gall to ask the price, and if you fellows have the price to pay, all right. You can always get the price if you ask it and there is nothing else to compete with it.

FRANK HOLSINGER: A man that stays in his office can telephone to these places and get the general idea, but he has not the situation in hand like the commission man. The man who is on the ground and has the goods there can say it is worth so much. The commission man knows every day just what is on the market and can handle it better than the man who grows it. If I had to depend on selling my own stuff, I believe that unless I could go right to the place myself I would give it to a commission man. Fellows that are a thousand miles off have to take a whole lot of risk.

W. D. CELLAR: I have had considerable dealings with commission men in the last twelve or fifteen years, and the relation between the producer and the commission man is peculiar. Now, in almost all of the commercial transactions of life there is a bargain and a sale—in theory if not in practice. However, in the transactions with commission men there is no bargain and sale. It is altogether a one-sided business. You put yourself wholly and exclusively in their hands, and have no means of knowing whether they are doing their best for you or not. I adopted the theory years ago that if I had to do that way to do it unreservedly. I find in that way that I do not get angry, and do not have any quarrels with the commission men, and everything goes along nicely.

MR. ARMSTRONG: I want to take a little exception to the gentleman with regard to the statement that he "cannot tell anything about it." The commission man of to-day has a bookkeeper, and everything is entered as it comes in, and it is also entered as it goes out, and all the gentleman has to do is to go into our office and look over the books and tell just where it goes.

Mr. Cellar: I was talking with a commission man one day in Kansas City. He had twelve or fifteen crates of berries ready to send to the dump. I asked him if he was going to make returns for them. He said: "Now, I am just positively obliged to do it. He is a good customer, and I must do it." You can't afford to do that sort of thing right along now; that is all there is about it. If you pay fifty to seventy-five cents for these

berries, you have got to get it back in some other way, have n't you? Certainly; you are not doing business for fun. You can put on the books whatever you please. That man undoubtedly put on the books fifty or seventy-five cents a crate for the berries, but they went to the dump.

MR. ARMSTRONG: Our bookkeeper is a lady you could not buy, as Mr. Cope will undoubtedly say, and if we sent five or fifty to the dump it would be marked "dump." Last year we did a very heavy business in berries, and to show you what the principal shipper thought about it, we had a letter from him the other day saying we netted him among the best returns he had, and wanted us to be able to handle a car-load during next season.

Mr. Cope: Perhaps we do business a little different here from what they do in Kansas City. There is a set of men in this country, and will be as long as the business is handled in the way it is, that have the idea in their heads that there is a sucker born every minute, and they will try and catch a few of them. They are just as much of a curse to our business as they are to your business, and the sooner we can find some way of getting rid of these men and step their stealing the better we will be satisfied. They overquote the market, get your goods, sacrifice your goods, get the money, or keep it.

S. P. BAILEY: My boyhood days were spent in Ohio. We shipped to Pittsburg. While we got some good returns from commission merchants, it was a rare thing we ever got enough back to pay for barreling the apples and shipping. We got it differently on the winter varieties. Whenever we made a kick against the returns we found the commission merchant a man of [unlimited] resources. If we were too pressing, a bill would come back for storage. We came to the conclusion that it was about as easy to find an honest commission merchant as it was to find an honest lawyer. Coming west, I sort of lost sight of commission merchants, until in Topeka some years ago I chanced to go into a commission house several times, and, as I looked over the shipments coming in, I thought possibly the fruit-growers in our section were as much to blame as the commission merchants were. I would rather be a producer and get less for the fruit than it is worth than to be put in the position of a commission merchant trying to save his reputation, with the fruit that had been packed in bad condition and left on his hands in very unsalable shape. I think the suggestion that has been given, of knowing your man before you ship to him, and then standing by him, is an incentive to deal fairly with the commission merchant.

Afternoon Session-1:30 p.m.

SECRETARY BARNES: Mr. Bailey will take charge of the "Conference on Apple Orcharding." He will call any one he desires for reply.

S. P. BAILEY: Two years ago I attended this meeting, and got profit from it. I thought I knew something about apple orcharding several years ago, but the first meeting I attended here I went away knowing less than when I came. Two years ago I wanted to put out an orchard, and I tried to get as much information as I could before planting, for I realized a good many years had elapsed since I left the fruit business, and there was much to learn that I needed to know. To-day I am just as much of a learner as I was two

years ago. We want to take up the orchard from two standpoints: the commercial and the family orchard. Please answer questions as briefly and as concisely as possible, and be free to ask questions.

SITE.

COLONEL ROBISON: I should take a moderately rolling site, thoroughly drained by nature. It is impossible, almost, in Kansas, satisfactorily to underdrain an orchard by tiling. I do not think there is much difference in the way the land slopes. I have land sloping every way, and I have some lacking in slope so much that the water went up on it eight feet this year. All bore equally well. In our county, I prefer land at the junction of two streams.

MR. BAILEY: Do you prefer upland to valley land?

COLONEL ROBISON: I want the land good, with rich, deep soil, which we rarely have on the upland. The size of the fruit on the upland for the first few years usually is much smaller. It is firm, but smaller. The upland does not hold the moisture so well. I would take the valley land in preference to the upland.

MR. BAILEY: Would you take the southern slope just as readily as the northern?

COLONEL ROBISON: I find little difference; I have fully as good results on southern slopes.

MR. BAILEY: Mr. Walter Wellhouse, what is your preference?

MR. WELLHOUSE: I believe that apples grown on upland keep better. They are firmer and keep better in storage than those grown on lowland. The quality and flavor are better. The apples grow larger on the valley land, but I know that for long keeping cold-storage men usually prefer those that grow on upland with clay subsoil.

IDEAL SOIL.

MR. HOOVER: I think I prefer sandy soil; a light, sandy soil for some varieties of apples, and a heavy, sandy soil for other varieties. For Grimes's Golden and Jonathan I would prefer dark sand with clay subsoil; for Missouri Pippins a light, sandy soil; for Ben Davis, it makes very little difference, but they are brighter red with sandy soil; yet gumbo or any kind of soil will raise good Ben Davis.

Mr. Bailey: Judge Wellhouse, what kind of soil have you found best in your part of the state?

JUDGE WELLHOUSE: Moderately deep limestone with the usual prairie surface; the subsoil a mixture of clay, with sand enough to be porous—underlaid with limestone lying from two to ten feet from the surface. We have some places in our orchards that are sandy, but only in a few such localities did they do as well as with a mixture of sand and clay. We have some land that is nearly all clay, with very little sand in it, and it does well and the trees have grown thriftily. I also notice the borers do not work as much on stiff clay soil as they do on sandy soil.

Mr. BAILEY: What kind of soil would you avoid in selecting your orchard site?

JUDGE WELLHOUSE: Any kind of soil that is wet. We have lost more

trees by wet than any other cause. We have lost thousands of trees because of wet ground.

MR. BAILEY: Have you ever found any difference in regard to late frosts cutting off your crops when on low land?

COLONEL ROBISON: Upland is more subject to having buds destroyed by winds, and the low lands by frosts.

SELECTION OF VARIETIES.

MR. BAILEY: How many and what varieties would you have in your commercial orchard, Mr. Van Orsdol?

B. F. VAN ORSDOL: Five or six; Maiden Blush, Jonathan, Grimes's Golden, Ben Davis or Gano (no difference which), and Winesap.

Mr. BAILEY: Mr. Stevens [from Nebraska], how many and what varieties would you have in a commercial orchard?

E. F. STEVENS: We [in Nebraska] make the most money out of Duchess of Oldenburg and Wealthy. We follow them with Missouri Pippin and Ben Davis.

MR. BAILEY: Mr. Curry, what would your selection be?

J. W. Curry: I would first plant Gano; second, Ben Davis; and third, Missouri Pippin. I have tried Jonathan; they have done well so far, and I like the way they grow. They come to bearing earlier than anything else so far tried.

MR. BAILEY: Judge Wellhouse, what is your selection?

JUDGE WELLHOUSE: In twenty-five years the Jonathan has outyielded and outseld by odds anything we have. It gets better every year. Next, Missouri Pippin; next, Ben Davis; next, Winesap. The Gano we have not cultivated long enough to have large experience. It has not yielded as well with us as the Ben Davis. The Jonathan first, Missouri Pippin second, Ben Davis third, and Winesap fourth. This from an experience of twenty-five years. We have only had York Imperial in bearing four or five years, and it has not been satisfactory; but I am told it takes York Imperial about ten years to get fairly to bearing, and I guess that is a fact. Our York Imperials this year were the best, and yielded the best of any.

MR. BAILEY: What is your selection, Mr. Taylor?

EDWIN TAYLOR: I would begin with Ben Davis, and I am not sure but what I would end with it. This year the York Imperial was the apple. It was the only apple tree we had with leaves on.

MR. BAILEY: Colonel Robison, what is your selection?

J. W. ROBISON: I think I would begin with Ben Davis, Missouri Pippin second, Jonathan third, and Winesap fourth, and that is about as far as I would go for profit. I think I would stop there.

MR. BAILEY: Mr. Cope, from the commission merchant's standpoint, what would you demand?

FRANK COPE: I would recommend very heartily the Jonathan as being the best seller, and then I do recommend the Grimes Golden because it is, I believe, sought after as an eating apple as much as any apple we have excepting the Jonathan; then the Winesap and Missouri Pippin. York Im-

perial I have not had much experience with. We have not had any very decided success with them here because they came in at same time with so many other apples. The Rome Beauty is a good seller and good keeper, but from conversation with growers I learn it is not very prolific.

MR. BAILEY: Has any one had experience in holding Grimes's Golden in cold storage after it has been hauled four or five miles? Will it bear transportation of several miles before it goes by rail to get to cold storage?

COLONEL ROBISON: I put up enough Grimes's Golden for family use. These were wagoned several miles, shipped twenty-five miles to Wichita, and packed by a totally inexperienced man. They have come out in very good shape. They and the Jonathans were nearly in the same condition on coming out.

MR. BAILEY: Did they yield abundantly?

COLONEL ROBISON: Not more than one-half the Jonathans.

MR. BAILEY: Personally I like the Grimes best of all apples, but it is a question of dollars and cents with the commercial grower as to whether it is profitable to plant the Grimes.

A MEMBER: If you plant Grimes's Golden on deep soil they will last well.

MR. BAILEY: In my own orchard we have about 6000 trees, possibly half Gano, or Ben Davis; then we have Jonathan, Grimes, Missouri Pippin, and Winesap. Now, in putting out several thousand more in the spring, what would you orchardists advise me to plant?

A MEMBER: Jonathan and Grimes.

MR. BAILEY: Now for the family orchard. What varieties would you have in your family orchard?

REPLY: Roman Stem, Huntsman, Jonathan, Early Harvest, Oldenburg, Dominie, Grimes, Summer Pearmain, Vandevere Pippin, Red Astrachan, Yellow Transparent, Wealthy, Maiden Blush, Cooper's Early, and Ben Davis.

SELECTION OF TREES.

Mr. BAILEY: Would you plant yearlings, or two-year-olds?

FRANK HOLSINGER: If you are going to plant an orchard where it can be taken care of, I believe one-year-old trees are preferable. You can get them shaped better. They cost less, and the principal thing is, you get the desired shape. If you are planting it in something else also, as those of us have to do where we have small plantations, such as raspberries or blackberries, I think two-year-olds preferable. One-year-olds will make just as quick a tree and just as good.

MR. BAILEY: Some horticulturists say they have better success by planting yearlings and two-year-olds together. Does "two-year-old" mean of several grades? I would not think is was advisable to plant a tree that had an abnormal growth. A five-eighths or three-fourths-inch tree would be a stronger tree, a better-rooted tree, and you would have a better tree.

Mr. STEINOUR: You might cut down a little lower than five-eighths and three-fourths.

MR. BOOTH: Several years ago I set out quite a number of grafts, among them Jonathans. When they were two years old I pruned them vigorously, and they are the finest trees I have in the orchard to-day.

MR. BAILEY: When we planted our orchard we desired yearlings, but could not get them, and had to take two-year-olds. I ordered them from Peters & Skinner, and they sent saplings to me. Some insisted they were four years old. I said, You can depend upon it if Mr. Skinner shipped these trees, and said they were two years old, they are two years old, and that is the end of it. In Kansas they make four-year-olds in two years. These large trees, I am glad to say, did splendidly. I had dug the holes fifteen to eighteen inches deep, and I had to give the roots a very severe pruning to get them into the holes. They have made a prodigious growth, and, after having worked with them for two years, my theory about yearlings is somewhat shaken. On some of that quality of soil which would not raise good white beans, we have trees that the growth in a single year would be twenty-four to thirty-six inches; so that my brother and I, in considering the planting this coming spring, are just wavering now between our former theory of the yearling and the two-year-old tree.

WILLIAM CUTTER: A good many years ago I visited Geo. Y. Johnson, at Lawrence, and we went out into his orchard, and he said he would like to have me tell the difference between the ages of the trees on the right and those on the left. I told him I would think the trees on the right were two years the older. When they were one year old these trees on the right were planted, and when two years old those on the left. I thought the one-year-old planting was two years the older.

MR. CELLAR: I suppose when he planted he selected the largest yearlings.

MR. TAYLOR: Mr. Cellar "put his finger on the nerve." The first-rate yearling tree is better than a medium two-year-old tree. I refer to my own experience with trees with a great deal of modesty, because the more trees I have the worse off I have been. In the last orchard we planted I think we got 5000 No. 1 two-year-old trees, and they were very fine. I did not plant them, I "set" them. The balance of the orchard, about 2000 or 3000 trees we still had, were two-year-olds, but they were not first rate; they were smaller trees. The big trees are two years ahead of the little trees.

MR. WELLHOUSE: There is a difference whether nursery trees are grown on the bottoms or upland. Mr. Skinner's two-year-old trees grown on the Kaw river bottom here are larger than most three-year-olds grown on upland. We grow our trees on upland, and, if we can, we let them stay in the nursery until three years old. In 1893 we planted 300 acres of three-year-olds. We always expect to have to replant. When we planted those trees we got a good stand and did not have to do any replanting, and the result was that we had a lot of trees left over in the nursery. In 1895 we had a lot of these trees on hand, five years old, and I bought a quarter-section of land next to ours and planted these five-year-old trees, and they are now eight years old and they had a fine lot of apples on this year. They have been bearing now for three years and they are as fine trees as we have anywhere. We have always had better success with three-year-old trees than with two-year-olds, and we have never had any success with one-year-olds.

COLONEL ROBISON: I think that when an orchardist goes to planting one-year-old trees he is going into the nursery business instead of orcharding. Two-year-old trees have wood of a firmer texture, and stand the cold better. There is more substance in the root and in the tree in a two-year-

old, and they are hardier than the yearling. They are a year ahead of the rabbits, which is an important thing in many places. Now, as to getting the shape of the head, I find no trouble in getting the two-year-old tree into the shape it ought to grow. I plant the tree in a position about pointing to the two o'clock sun. It takes continual pruning on the northeast side to keep this tree balanced over the root. You avoid the sun-scald, and you prevent the flat-headed borer from getting in where the sun in the least affected the bark. Now, I would not say but what the expert who goes over his orchard two or three times a year and lops off all the limbs that are out of place will get out in much better shape, but the ordinary orchardist will find his orchard in very good shape by going over it once a year. A two-year-old tree will bear the sun and the cold better than a one-year-old.

JUDGE WELLHOUSE: Mr. Bailey speaks of his inability to prune up twoyear-old trees. We commence shaping the top of our tree in the nursery when one year old. By the time it is three years old we have that tree just as we want it. We can get our trees shaped as we want them before we put them in the orchard.

MR. VAN ORSDOL: I do not see why you want to cut back the tree at all. I let my trees have the main center limbs to build upon. I trim to make it symmetrical. I never cut back a Ben Davis.

MR. BAILEY: Trees may differ in different localities, but up where we live, if you take an apple tree and plant it at an angle, as Mr. Robison showed us, the limbs will grow out on the upper side of the tree. I had a neighbor who planted some trees that way, and he told me the next year he dug those trees up and turned them around.

E. G. HOOVER: I want to say that we tree planters around Wichita do not set our trees to the southwest sun. We think that if you set trees leaning to the southwest the wind will make a rainbow of the tree.

MR. BAILEY: It strikes me that the theory of setting trees is against setting the tree to the southwest towards the two-o'clock sun. In planting our orchard we tried to get the trees just as erect as possible, and then to head the tree out low enough so that the head would shade the trunk from the two o'clock sun.

PLANTING.

Mr. Van Orsdol: I do not take very much pains in planting trees. I simply get hole enough to put my trees in, and if I get my hole a little too small I cut off some of the roots. I do not want a hole more than one and a half feet across. After I get the tree in the hole I take particular pains to put in some loose soll under and around all the roots and stamp it with my foot, and get it as solid as I can.

MR. CELLAR: We lay off the ground with two horses and a turning plow, both ways, in squares; then a man with a spade will throw out the dirt in the cross. The man with the plow tips the plow as he crosses, so that the man in planting, with very little labor, will make the place for the trees.

WALTER WELLHOUSE: Our method of planting has been told so often that I suppose most are acquainted with it. We lay off the ground east and west with a marker. North and south we run with a fourteen-inch plow and throw out four furrows, and then plant at the intersection; we then throw the dirt to the trees with the plow, afterwards smoothing up and

straightening up the trees. We have never planted on any soil where we could not use that method. It may be some soils are too heavy.

MR. BAILEY: Mr. Taylor, how deep would you dig the holes, or would you dig holes at all?

MR. TAYLOR: The tree should go into the ground fully as deep or a little deeper than it was in the nursery.

SECRETARY BARNES: I was at the Missouri state meeting, at Neosho last week, and the opinion there was that if the roots were actually on top of the ground it was better than to have them too deep. One party down in Missouri planted a large orchard on top of the ground; did not dig any holes at all. He set his trees upon the top of the ground and piled the dirt up around them, and his trees grew well.

PRESIDENT WELLHOUSE: If you can plant on the surface and cover the roots up it is all the better.

MR. BAILEY: My trees, when they came, had immense roots; so I put men to work with shovels, and in digging the holes some of the trees having such large roots were planted three or four inches deeper than when in the nursery. Judge Wellhouse said under such conditions some trees would do well and others would not. Yet these deep-planted trees have thriven and grown beyond all our expectation, and I question whether in the planting of these 5000 or 6000 trees we lest more than one per cent. by deep planting. So we are standing in the form of an interrogation point whether or not in that soil we ought to plant deeper than in other soils. Last year we had excellent success; trees planted this year have not done well.

Mr. YAW: My soil is sandy. I planted my trees fully half-way up to the limbs, and I lost 1 tree out of 100.

COLONEL ROBISON: I do not think it is very material whether you go very deep or not if you handle right after the tree is set. I do not think any tree planter would want to cover up the roots much deeper than when in the nursery. But the aftergrowth of roots from the old roots will take their proper position whether deep or shallow. Your tree roots will find their natural position any way, as they grow out and spread about.

MR. BAILEY: While this is true, that the lateral roots will start out where they belong, is it not true that the roots will become diseased and cause the roots to rot, when planted deeply? Most of the trouble with many of our orchards is, we plant them deeper than is natural, and we plow toward them, and in a year or two we have them a foot or two deeper than they ought to be.

MR. KENOYER: The difference in your trees that were planted deep one year and did well and the next year planted the same and did not do well may be due to the season. It may be due to that and not to the deep or shallow planting.

Mr. BAILEY: So far as we could see, there was no difference in the rainfall.

B. F. SMITH: If we would plant our trees shallow they would grow sixty instead of thirty or forty inches. After digging the holes, we do not allow our men to tamp the dirt around the roots of the tree at all. I found that when I allowed the men to tamp the roots in they were tamping on the

roots, and would tilt the trees over. Clay soil settles down more closely around the roots.

MR. BAILEY: Mr. Taylor, please trim a tree ready for planting.

MR. TAYLOR: I would get it of a nurseryman first, like Judge Wellhouse, who has his trees already trimmed. After they are set out you should keep your jack-knife away from them.

MR. BAILEY: One orchardist told me his trees did not start until July one year. He trimmed them and they started.

MR. TAYLOR: I never trim my trees when I put them out. I have no trouble to make them grow; my trouble is to make the leaves stay on.

CULTIVATION.

Mr. BAILEY: Mr. Stevens, your method of cultivation the first year, please?

E. F. STEVENS, Crete, Neb.: The best results have been gained by cultivating about once a week. An orchard of fourteen acres we planted in one of the very dryest years we ever had was cultivated in that manner, and we lost no trees on eight acres and only six on fourteen acres. It is necessary to keep the surface of the soil loose and open until August, if possible. We use disk pulverizer, Acme harrow, and sometimes a steel harrow. Cultivate the row with one horse. We would rather not grow any crops between the trees, and we cultivate both ways. Yet some who have grown corn in the orchard and planted it late found a certain measure of winter protection.

MR. HOOVER: The first time through in the spring I use a one-horse disk. I commence in April. It is the best way to get your weeds under control. We have 145 acres planted out last spring and twenty acres the spring before. We go through in April, and we keep going through the orchard with disks all summer. I plant potatoes and corn between the rows.

COLONEL ROBISON: I take the corn method in my larger orchards. I drop the corn check-rowed, and cultivate it in the best methods of corn culture. After the trees get so large that the limbs extend out over the ground I use an extension disk or an extension cultivator. I cultivate as long as we do corn.

WM. BOOTH: How long have you done that, colonel?

COLONEL ROBISON: I have some twenty-five years old that I am still cultivating with the disk or cultivator. I think the cultivator better than the disk, but both are good. It catches, sometimes, under the roots worse than the disk. I commenced heading trees about three feet, but the limbs on ten-year-old trees are about touching the ground. Frequently, after the first year from planting my trees, I get nearly a full crop of corn. We are short of corn hills only one row the first year, and not very much more the second year. That makes it up very well. I make a little profit out of corn. It is profitable to cultivate the corn. If a man had potato soil, potatoes would be all right. I believe young trees thrive better to have the full benefit of the sun and wind. If we have much protection, as we sometimes have, the tree is robbed of its moisture.

MR. BAILEY: Has any one tried clean-cultivation methods in his orchard?

MR. STEVENS: Much of our work has been done in central and western

Nebraska, where the rainfall ranges from eighteen down to fifteen inches. We do not grow anything in the orchard but trees, and in this way store up the moisture.

H. A. HOUSTON: We have tried all sorts of things at the Indiana Experiment Station. We have had trouble with continuous cultivation in the summer. In the first place, it is a lot of work. If you keep it up diligently in the summer and the rains come on your trees will die. We do not favor continuous cultivation any more. We would rather the orchard would go into grass. If you really want to keep the trees from weeds they should be cultivated.

Mr. DIXON: I take it we are discussing the first year's cultivation. I do not think it would be practicable to use the weeder at all. The disk keeps the ground plenty loose enough, and the only place I think it would be practicable to use the weeder in the orchard is where we are growing a crop like potatoes; then we could use it. During the past two seasons it has been so wet we could not use the disk at all; had to use a stirring plow.

COLONEL ROBISON: I would not by any means put a crop you could not cultivate into an orchard. I did have an experience once by sowing some wheat in an orchard that had been planted three or four years. Ten or fifteen years after you could see to the line right where the wheat was sown. The trees were smaller than the other trees.

MR. BOOTH: I have had a little varied experience in cultivating an orchard. I set out an orchard ten years ago this spring. We put in corn. We used the extension disk. We have plowed the weeds twice a year ever since. Two years ago the coming spring I put out 1500 trees. I cultivate corn in nearly all. Some of it we have in potatoes. We have both corn and potatoes among the trees, and have had for two years. The soil is just the same, but the trees in the potato patch are double the size of those we put in the corn.

Mr. TAYLOR: A member spoke about small grain and weeds being dangerous. Any kind of small grain is dangerous in an orchard.

PRESIDENT WELLHOUSE: We have a man here from Connecticut to talk to us, and before he talks I want you to know who he is. Gentlemen, allow me to introduce Pres. J. H. Hale, of Glastonbury, Conn.

Mr. Hale: Coming out of Kansas City, this afternoon, an agent of the railroad, or some Kansas agent, came along and handed us a little pamphlet advertising lands in Kansas for sale. I looked it over a while, and took it that there was an abundance of good and cheap land in Kansas. I come into this horticultural meeting and find you are discussing how to get two or three crops from the land each year. It does not strike me as being good horticulture, or good agriculture, to try to get two or three crops off of the land in one year. We should devote our entire energies and talents to that orchard. My friend says he leaves out one hill of corn and the tree grows. Have you ever tested the land where nothing but trees grow? I have watched it in the Eastern states, in the Southern states considerably, and in a moderate way in the West. Not those who try to grow two or three crops, but those who nurse the orchards from the start, are the ones who are getting the best orchards and the most fruit from them. As a general proposition, the orchards of Kansas, the orchards of the West, and of the

country generally, do not show there is any great surplus of plant-food. Take a little better care of your orchards. Some of my land is such that we can break it out in the spring. If we take it early with disk-harrows and then with the cut-away, the Acme, and the spring-tooth, as the conditions of the land require, and keep it up, then we can keep it clean. If it does not need any nitrogenous stimulants, we sow some oats or barley, or even turnips. On most of my land I find it best to sow clover. Some lands grow up to grass and weeds; this checks tree growth, but also checks the waste of nitrogen and holds the snows of winters. I have a notion that when trees have gone to rest for the winter, and the foliage dropped, it is injurious to break the ground; so that I do not then want any plowing. I would not let anybody do any cultivation in my orchards in the fall at all. A portion of the fields are allowed to go to weeds. I use cow-peas very extensively in the South, and moderately in the North. In the South we sow cow-peas in our older orchards. We cease cultivation there about the first of June. We usually broadcast about a bushel of cow-peas to the acre. We abandon all cultivation usually by the early part of August. We let the cow-peas remain as a covering for the earth. Many neighboring orchardists plow in November, December, and January, because it is cooler weather, and they need the mules in the spring; but I am afraid of it.

Mr. Bailey: Clean cultivation means more to Mr. Hale than it does to us. I do not believe we have any orchards up here cultivated like he cultivates his peach orchards in Georgia.

WRAPPERS AND WRAPPING AGAINST BORERS.

MR. TAYLOR: I never wrapped trees to keep the borers out; quite likely I should. We went over them twice a year with our knives and dug them out.

COLONEL ROBISON: I have done the same as Mr. Taylor.

Mr. Hoover: We have never been troubled with borers. I would dig them out and smash them.

MR. CELLAR: I had a little experience of that kind. I wrapped my trees, not for borers, but for rabbits. We used wooden veneer wrappers one year in one orchard; I neglected to take the wrappings off in the spring. The borers [beetle] went in at the top, and there were more than I ever had.

MR. HALE: I think banking is the best way to keep out the borer.

Mr. YAW: My recipe for rabbits is simply one part pine tar and twoparts fish-oil. I have used it for fifteen years and never lost a tree. No rabbit, no mice nor borer will ever bother it.

MR. ALEXANDER: I tried that tar business one year and it killed all the trees I put it on. The best thing I ever tried is to tie newspapers around the trees.

MR. BAILEY: I tried that, and the first thing the rabbits did was to rip the newspapers up, and then the apple tree. A friend of mine gave me a similar recipe. It was whale-oil soap. The rabbits came early. I prepared that emulsion and went right to work. About four o'clock the rabbits came out and sat there waiting and watching for dusk, to begin, and the way they did go for those trees that had the whale-oil soap on was a caution. You do not expect rabbits to climb trees, and yet in an old orchard they seemed to jump up in the branches and nibble the bark off the trees twelve years

old. For them the best method we have found is common axle-grease and sulfur; the more sulfur the better. They never bark a tree that has sulfur on it. [Be chary of grease or oil.]

COLONEL ROBISON: I was going to caution this Society against using pine tar. More than thirty years ago I had the misfortune to get cankerworms into my erchard. I sent for five barrels of pine tar. I mounted that on a sled, with a large tin can and a little fire under it, and I sprayed eighty acres of apple orchard ten or twelve years old, in good bearing. I took a whitewash brush and sprayed in around the tree. It prevented the cankerworm, but it also prevented the trees' growing where that tar adhered to the trees. Se that I surely would be very careful about using tar and axlegrease. I remember a neighboor of mine put on axle-grease and it killed every tree that it was thoroughly put on. You might as well encase it in cast iron. My simplest and cheapest remedy against the rabbit is to tie corn-stalks around the apple tree. It is effective and does not shut out the air, but it does shut out the rabbits. I also used calico and wrapped it around the tree. Tear it in strips; it will last about two years.

Mr. OBERNDORF: I would recommend, to those who use tree wash, to use powdered glass.

QUESTION: If an orchard must be set where an old orchard has been, what treatment of the land should be made before the new orchard is planted?

PRESIDENT WELLHOUSE: I would not plant it. We have planted trees several times where there were old orchards, small family orchards—cut them out and planted them over with young trees—and never had success.

QUESTION: What success has attended the use of the dust spray during the last year?

MR. BOOTH: As far as dust spraying is concerned it did not save any apples for me this year. I sprayed four times with the dust sprayer. The first spraying evidently destroyed the canker-worms.

QUESTION: Have power sprayers been found satisfactory?

MR. DIXON: I bought a power machine and mounted it on a wagon and it did fine work, but it took lots of horse power to run it. We used a sprayer with extension rods, four nozzles on each rod. Never have to stop the wagon to spray a tree. A mile or two away I could see the boys spraying in the orchard.

A MEMBER: Can you spray a tree thoroughly in passing by it?

Mr. DIXON: It looked like it was thoroughly done; I cannot say positively. We went both ways, mind you, in the orchard.

MR. BAILEY: Has any one tried turning under green crops in his orchard?

MR. HALE: I have tried it. I want a green cover crop in the winter. One reason is, to gather nitrogen from the air; another is, to hold the nitrogen from escaping, and a third is, for a cover crop for the winter and to turn under in the spring. If you grow a clover crop in the orchard, with us Yankees down East there is a temptation to leave the clover a few weeks too long in the spring. I have got beyond that temptation now, and so I turn it under the minute I can get a plow and harrow in the spring. Thus

we get a growth of clover during August, September, October, November, and sometimes in December. I want it plowed under in the spring, to get the nitrogen. My orchards have to be cultivated very early in the spring. The first two months are the growing months for the trees. I sow clover again the next August. Plow during April, May, and June, and sow clover in July and August. A word about the sprayer. I do not like to be old-fashioned. I like to do things as well as I can and as cheaply as I can. I have tried a number of power sprayers, and I am forced to confess to you here at this time that I can do the work better and cheaper with hand power. My power costs me practically nothing. You can control it better than you can any other. In spraying from 200,000 to 300,000 trees a year we use a great many pumps. We are now doing it all by hand.

MR. HOUSTON: I want to caution you against the value of Mr. Hale's legume methods, in apple orchards particularly. I came out here more particularly to hear what he had to say on fertilizing orchards. The upland orchard gives better fruit, but it does not last long enough—the bearing period is not long enough. During the last six months I have been in the orchards or stations of five states in the West here. I have seen superb apple trees but no apples. They are on land too rich. While you have fine lands, your soil is out of balance. If you turn legumes under you will simply bring your trees into bearing later, and you will get your soil still further out of balance. I believe it is good for a society like this to examine the matter. I believe the most of you have the same notion that many of the corn farmers have, that fertilizers are not necessary in this country. It is absolutely necessary, because it is profitable. I think you will have, sooner or later, the question of whether or not the natural richness of this country is sufficient. I think the sooner you start some investigations along that line the sooner you will realize the very large profit upon the very large natural resources you already have. When it comes to quality in your fruit, when it comes to the keeping of an apple like the Wealthy, when it comes to getting continuous crops, I think there is a very large field for investigation.

MR. HALE: Plant leguminous crops, if your land needs them. I admit that every intelligent orchardist, if he is orcharding for profit, will ask his trees what they need. When they need nitrogen, plant crops that give it.

Mr. BAILEY: Tell us what you would do if your trees needed phosphoric acid.

MR. HALE: Probably in Kansas here, near the source of bone, I would use finely ground bone. In the Southeast we use acid phosphate. I use bone in New England, potash muriate, and on some of our orchards bone black. In Georgia, for this winter, I have just bought 100 tons of potash, 200 tons of acid phosphate, and 50 tons of cottonseed-meal.

MR. BAILEY: Can profit be made by using cull apples for cider, vinegar, evaporated or canning products, by the orchardist?

PRESIDENT WELLHOUSE: We have had a good deal of experience, and after years of such experience we have decided it is best to sell to parties who are in the business. We sold our culls this year to a vinegar factory in Leavenworth for thirty cents per hundred. Sell your culls to those who make a business of working them up.

MR. BAILEY: Shall we advise the farmers of our state to plant more orchards?

A MEMBER: Down our way they are not profitable enough. It is more profitable to raise alfalfa and corn and wheat.

Mr. HOUSTON: In the matter of putting on this fertilizer, how is it applied?

MR. HALE: Broadcast it and work it in with harrows and plows.

MR. STEVENS: In southeastern Nebraska there are quite a number of older orchardists who are convinced that the efforts they are making in that line do not pay as well as some other lines of work. Our own work is in growing fruit in western and northwestern Nebraska, where it is very satisfactory.

PRESIDENT WELLHOUSE: The last few years have demoralized me. Yes, I think that orchards right here in Kansas, properly planted and properly cared for, will bring paying crops. I have been growing apples as a business for forty years; we plant every acre we can buy, and whenever we get a little money ahead we put it in land and trees, and we would not do that if we thought it would not pay. There are many orchards that cost a great deal more than they ought to, and do not pay for that reason.

Evening Session-7:30 P. M.

MISSION OF THE STATE AGRICULTURAL COLLEGE. By Prof. J. T. Willard, Manhattan.

In discussing the mission of the Agricultural College, I think we must go back to the foundation or organic act, and see what these colleges were founded for. The endowment, derived from the sale of public lands, was for the maintenance of at least one college where the leading object shall be, without excluding other branches, to teach agriculture and the mechanical arts. Now, it will be seen from the literal wording of the act upon which all of this group of land-grant colleges rests, they may teach anything without excluding other scientific and classic studies. I may say here. lest I forget it, there is not at the present time, and has not been for twenty-five years at least-thirty perhaps-any Latin or Greek taught in the Agricultural College of this state, There is not a year but I meet some one who believes that Latin and Greek are among the studies pursued at the Manhattan Agricultural College. The mission of the college, then, is to give a liberal and practical education to the industrial classes, and these industrial classes include agriculture and the mechanical arts. In the foundation of this institution the lawmakers of forty years ago provided for instruction in military tactics. For myself, I am glad they did, and believe it is a good thing. The drill which the young men receive is good for them. It sets them up in physical condition, and is good. That is one of the objects described in the organic act. The mission is to give a liberal and practical education to all classes.

How is our Agricultural College doing? We have six courses. Even ten years ago we had only two; practically one course, with some variations. In 1897 three courses were made, and, in 1898, another added, and others at intervals since, until we have now six courses.

Five years or a little more ago the courses in effect provided that the students should elect their courses upon entering the institution. Now, I am not as old as some of you, and, perhaps, I remember how boys usually are tired of the farm. Maybe they should not be, but it is a matter of fact that young men on the farm are very apt to be very tired of the farm at sixteen years of age. When the agriculture course, as distinct from the science course, was established at the Agricultural College, just about six years ago now, all freshmen, or first-year students, had to elect what course they would take. We had over 300 there. Now, how many do you suppose elected to take the agriculture course? Just eleven. The course was changed in the spring of 1899, or it was sought to be changed, so that the students do not elect which course they shall pursue until they begin the second year. The first-year course is identical in all. In that are one term in agriculture, three terms working in the shops, a term in botany, a term in elementary physics, and some drawing.

There is something in that first-year course that severs all thought of the other five courses; something that gives him an opportunity to see what it is like. There is, I wish to emphasize, a term of agriculture, in which the young man, no matter what his predelictions were, or how sick he was of the farm when he came there—in which he has an opportunity to find out what agriculture may be when it is studied in a systematic manner. That system has been in force five years. Every young man has to take that course of agriculture. In 1898—'99 twenty-two per cent. elected to take the agriculture course; next year thirty-four per cent., the next year thirty-nine per cent., the next forty, next forty-one, and the next forty-one per cent. It shows the effect of being compelled to study agriculture one year, and the general drift of the whole thing is, we have this increase in that study. Five years ago fifty per cent. elected to take the general science course; next thirty-nine, then thirty-four, and next twenty.

Of the engineering courses there are two, or we might say three: Mechanical engineering, electrical engineering, and architecture. These three courses have the same in the second year. At the beginning of the third year they split. Mechanical engineers have certain studies peculiar to their work; electrical engineers some peculiar to theirs.

"I want to emphasize the fact that we have a domestic science course. We have many young ladies. About thirty-five per cent. are young women; yet there are hundreds of people, thousands of people in this state who do not know that girls may attend the Agriculture College, at Manhattan. In 1899 only thirty-five per cent. elected to take the domestic science course; the remainder took general science. The number has been increasing, until last year ninety-two per cent. elected to take the domestic science course instead of general science. It certainly is an exceedingly practical course; and while domestic science is not mentioned in any of the acts founding the institution, I believe it is legitimately included in that general caption of the agricultural classes.

Now, we have, in addition to these courses, certain short courses. The education that is suitable for one person is not suitable for another. In these six long courses we have not met the needs of all of the industrial classes, but we have four short courses which are designed to meet their needs. One is a farmers' course. Another is a farmers' dairy course; it differs, in that greater stress is laid upon dairy subjects; a dairymen's

course, which has special instruction for those who have to run a creamery. For young women, we have a short course in domestic science.

Each short course is two terms long. These are practical rather than liberal, we might say. They teach the art as far as possible in the limited time, and so much of the science as can be given in the short time. Now, I want to emphasize the fact that in all this teaching there is practice with the science. I believe that the sciences as taught there are taught in a manner in no way inferior to the way they are taught in any other institution, so far as they go. But accompanying this theoretical information, so to speak, instruction in the sciences, there is every-day practice in the arts resting upon these sciences. You will find, on looking through the catalogue, one, two and three duties which are practical in their nature—shop work, laboratory work, work around the farm and in the dairy-in connection with the sciences. It is required in these courses, and a part of them as much as anything else, so that they are constantly getting practice. The result is that a type of young manhood and young womanhood goes forth from that institution capable of showing what scientific knowledge is good for.

It has been stated to me by one of the high officers of agriculture, that there is no other institution in the land in which the graduates are so well and practically trained as those that come from the agricultural college. It actually dignifies labor. The young men there are not ashamed to have their best young lady friend see them in overalls. It is a matter of course and it is a part of their business. There is, however, in connection with the Agricultural College, and a part of the Agricultural College by act of Congress and by act of the legislature of the state, an experiment station. Whether that experiment station is doing all it should or not is a matter for argument, but it is true that the institutions with which we are so frequently compared to our detriment are institutions which have two or three times more funds available for work. The Agricultural College, at Manhattan, has \$15,000 per annum appropriated, and that is all. I am quite sure that were greater appropriations available there would be more work done.

Another line which has been made a part of the Agricultural College, and which is legitimate, is the work in connection with the farmers' institutes. There are many members of the industrial classes who cannot attend any college, who cannot leave home, and it seems to me a legitimate direction of effort for the colleges to attempt to give something to these people who are at home, and the farmers' institute work is work of that kind. It is true we have not done as much in that line as many other states, although we were ahead once where we are behind now. The officers of the institution are neglecting other work when they are doing this work. The farmers' institute work cannot be overdone. When a larger amount of money is available we may employ more men, and women too. When the income of the Agricultural College is more nearly commensurate with its needs, so that there can be more men and women there, more of this work can be done.

I have been much impressed with this farmers' institute work recently, and especially to-day. I was asked to prepare a history of these institutes. The first one was held on November 1, 1888, at Manhattan, under the auspices of the Manhattan Agricultural College. At that time, it is interesting to note, that the ideals of those people in respect to the farmers' institute

were about the same as ours are now; that is, to furnish speakers who will give interest to the subject because of coming from somewhere else, and also bring into the program speakers from the locality where the institute is held. We do not believe that sending men around to give lectures is the ideal way. We believe, as far as possible, in helping those who help themselves.

I hope, if you have had your interest aroused in the institution, that you will look into it, and look at it, if possible. I have never met a man who was not tremendously surprised when he went to visit the State Agricultural College. It is commonly called the greatest agricultural college in the world; I think it is, in the point of attendance. I believe it is an institution of which any of you may be proud. It is one of which I am proud, and I hope you will avail yourselves of an opportunity to visit it, or write there for information. The college catalogue is exhausted. Notwithstanding the institution has been sending out these catalogues for forty years, it is surprising how little is known about it.

A MEMBER: What preparation is necessary for a young man to enter the college?

MR. WILLARD: We maintain preparatory classes for students. They can enter these classes with very little knowledge. We had one there this fall, so I am told, who was of rather mature years—perhaps thirty years old—and it turned out he could not read nor write. He said he went up to the boss, and the boss told him he would have to learn to read and write, at least. So he went down town and hired a tutor to teach him to read and write. Now, there are some classes that can almost take him in after he has learned to read and write. It will probably be several years before he is ready to enter the first-year classes, which requires considerable knowledge of mathematics, considerable training in history, and certain other topics which are not taught in public schools. The requirements for graduation have been raised materially from time to time. There is an unbroken connection with common schools. The students mainly board in clubs. The expense in these clubs is greater now than it was a few years ago. I think it costs \$2 to \$2.25 a week for board. Rooms cost from \$4 to \$6 a month, which would not include heat. Books they must buy for themselves, which would cost \$3 or \$4 a term. There is an incidental fee of \$3 a term imposed by legislature, from this state, and \$10 a term from students entering from outside.

FRUIT EXPRESS.

By E. W. Jones.

I understand I am to talk to you about preparing fruit for shipment, according to the ideas of the express people, and when I give you our views on this subject I will try and observe the admonition of one of our greatest men, that it is better to be brief than tedious. First, grow nothing but the very best varieties of berries, especially strawberries and raspberries. When you have grown a good article it will command a good price wherever you send it, regardless of condition [?]. Then you should put not to exceed twenty pickers in the field under one field boss. Each picker should be given one particular row and not be allowed to step over to another.

He should be provided with a tray large enough to carry six boxes. He should be required to fill all of these boxes at the same time. One of these boxes should be used exclusively for the overripe fruit. Down in our country it has been the custom for several years, until the last two or three, that the growers required the pickers to pick overripe stuff and throw it down, and as a result the pickers got no pay for their labor. Consequently they would put the overripe fruit in the bottom of the boxes, and the result was the fruit would easily get in bad condition.

Now, then, if the rule is observed to put all of the sound fruit in separate boxes, and the boxes well filled, it will be the most profitable thing you can do. You can take one box of overripe fruit and distribute it through a dozen boxes of the others, and it will so damage them as to spoil all the others. If you pay these pickers and have them put the ripe stuff in separate boxes, and sell it locally, if you get nothing more than the cost of picking and the crates you will sell it profitably.

The berries are then brought to the shed and should be crated in the very best crates you can buy. Then each crate should be stamped with the grower's name in the upper left-hand corner. Crates should be nailed up on a solid table, so that driving the nails into the crates does not jostle the fruit. The driver should be instructed to drive slowly and prevent jostling as much as possible, because some of the best fruit we have is ruined between the packing shed and the depot on account of rough driving.

In handling express, berries have to be stacked high, on account of contracted space in the car. The cars are filled to their utmost capacity, and if your boxes and crates are of poor material the bottom ones will be crushed. During the summer-time, I do not think there has ever been a train I have ridden on that I have not found from 1 to 100 crates of such frail material, all in bad order. [Growers should note this.]

Another important thing is to ship your own stuff. The name and address of the consignee should be stamped plainly in the center of each end of each crate. If the name and address are on but one end, the messenger will stoop down and pick it up, and often turn it around, and in that way he loses a great deal of time; and not only does he lose time but he damages your fruit in handling it. Now, prepare your fruit as I have said; raise only the very best fruit; fill your boxes well; use nothing but the very best box material; instruct your drivers to drive slowly, and cover the berries with a tarpaulin, so that no dust can get onto them.

There should be inspectors to open up from one to three boxes of each shipment. If the stuff passes inspection, then it is simply up to the transportation company to deliver them in good condition; and if they are given to us in this condition, I am confident that Wells, Fargo & Co. will deliver ninety-five per cent. or more in good condition; but if given to us in bad condition, or if an inferior article in the first place, you cannot expect good service, because we cannot give it to you. If you put it up as I have indicated you will protect yourselves, and we will give you good service,

Thus far I have spoken to you in regard to small fruit. The same rule applies to peaches and tomatoes as to strawberries. Put nothing but sound fruit in your crates.

In the last few years the Wells-Fargo Company has entered the field of refrigeration. In fact, in northern Arkansas, on the Kansas City Southern railroad, every car-load of fruit moved off that line this year moved in WellsFargo cars. From a refrigeration standpoint I maintain our cars are just as good as any other, but where we excel is in the fact that we use Pullman trucks under our cars, and the cars are handled only on passenger-trains, and we save much time in going to market, no difference where the market is. The growers claim that the express companies damage and frequently ruin shipments of fruit, which I admit is true, but the cause, nine times out of ten, unless there is an accident, occurs from poor addressing and poor quality of fruit. If there are any questions, I will be glad to answer them.

MR. DIXON: In car-load lots, how wide slats do you use?

MR. JONES: We use slats from five-eighths to an inch thick.

A MEMBER: What is the difference between the charges for refrigerator services of the express lines and the Armour lines?

MR. JONES: The actual cost of ice. For instance, from Arkansas points to Denver is twenty-seven dollars a car for refrigeration, while if it goes over the Armour line it is about sixty-five dollars.

A MEMBER: Do you instruct your employees in the manner of handling fruit?

MR. JONES: Yes, we exercise the greatest care in instructing them how to handle it. If you take the crates up and slide them you will have no trouble with them, but if you pick them up and drop them, there is where the damage comes. [This is just what is always done.]

MR. SMITH: I have been shipping strawberries from Lawrence for twenty-four years, and I have observed in the last few years that your men at Lawrence pick up our crates and throw them. We set our crated berries down outside of the door of the express office. They come along and pitch them over onto their wagon. Then when they get down to the station they will pitch them out of the wagon onto an old, rough truck, and from there to the car. I have watched them. This year there was one train we shipped on out of Lawrence that I could back right up to the express car and put my fruit in. The fruit I shipped in that way sold well, while the fruit the express company handled, either the Wells-Farge or the Pacific, arrived in bad condition. I sent the agent at Clay Center sixteen crates, and he sent back word "Sold for express charges." That is the way things have been going. We want you fellows to send out instructions that the growers shall be the inspectors, and we want you every spring to favor men, new or old, who handle berries carefully.

MR. JONES: Your point is very well taken, and I will refer you to Mr. Lytle, who is here, and who has charge of your territory. There was an unnecessary handling of your stuff, from what you say, of about two or three times. You should deliver your stuff at the depot, and there is where it should be handled. In our country we have everything delivered at the depot.

MR. KENOYER: If we delivered our fruit at the depot there would be no one there to look after it. This difficulty I have had on different occasions. One time I shipped three crates of blackberries to Iola. The consignee wanted them on a certain morning. I shipped them the evening before, and saw they got started all right. They were put into the express-car and covered up by other express, and carried to Kansas City, and laid there all of

the next day, and the next morning (Sunday) they came to Iola and had to lay until Monday.

Mr. JONES: You had a just claim, and it would have been paid if you had made claim.

MR. HOLSINGER: I stood at the express office and saw the express piled up with raspberries. I saw these raspberries tumble over into the mud, and I saw the men get down there with their hands and tumble them back into the boxes just as they were, mud and all.

MR. JONES: You had a just claim, and it would have been paid.

SECRETARY BARNES: One of the most surprising things I have ever seen was this: I happened to be in Cherryvale, and was standing near by when the agent came out and put his fingers into the crate, tore off the lid, and gathered out a handful of berries and ate them.

MR. JONES: I know the agent at Cherryvale handles a great deal of stuff, and I think it must have been his own. There is no commission man there. Knowing the man as I do, I really do not believe he would pilfer from any one. [They were transferred from Frisco. Secretary.]

A MEMBER: What do you do with your agents where they act as commission men and forget to make returns?

MR. JONES: We discharge them.

COLONEL ROBISON: Your agents sell fruit along the line considerably, do they not?

Mr. Jones: Yes. We want you to make all these complaints perfectly clear. We want perfectly fair treatment of our patrons. If there is anything that is wrong or savors of dishonesty, wrong-doing, or rough handling, we want you to refer them to us, and we will make it right.

MR. KENOYER: Knowing these fruits you handle are perishable, why is it that you do not make such fruit the first thing you deliver?

MR. JONES: That is our intention. If you will cite any particular cases, that is the way to remedy any evil. If you will say the agent at such and such a place did not deliver your stuff promptly, then we can get at the case and remedy the fault.

MR. KENOYER: I made a shipment of berries at eight o'clock; they were transferred to Wells, Fargo & Co. at nine o'clock, were put on the train leaving Independence at ten o'clock for Wellington. That train should have reached Wellington and did reach Wellington on time the next morning. That fruit reached Wellington at eight o'clock that night; was lost somewhere between Independence and Wellington. Instead of getting there on the early market for the day they should, they were delayed twelve hours. They were consigned to the agent at Wellington, and the loss was twenty dollars. I have a letter saying he could have gotten twenty dollars more for the fruit than he did.

Mr. Jones: It seems to be a just claim. Pass it up to Mr. Lytle and it will receive prompt attention.

Mr. Dixon: I do not believe we are getting much out of this part of it. There are a good many cases on the express company, and a good many more on us. What will apply to express business will apply to local business. Do you think it makes any difference as to the material the crates

are made of? Don't you think any of it is strong enough if it is properly nailed?

Mr. Jones: No. This year at Gentry we bought a lot of poor crates. This year the secretary of the fruit-shippers' association said: "Now, Mr. Jones, you have always had your way. I want to get a cheaper crate, which will save one or two cents per crate." "Well," I said, "go ahead." In one car we had berries stacked up very high, and the train gave a lurch going around a curve, and it simply crushed the whole pile, and the loss in that one pile in that one car was actually half as much as the amount he saved on the whole thing. If you get a good, neat crate, squared up as it should be, it adds to the appearance and helps sell the stuff, and, in my opinion, is the wisest thing to do.

A MEMBER: Do you think the sixteen-quart crate the best?

MR. JONES: No, I do not. I think the twenty-four-quart crate the best. It costs as much to pack a twenty-four-pint crate, within about six cents, as it does a twenty-four-quart crate. I think a twenty-four-quart crate is not too large to handle safely.

A MEMBER: Have you had experience with white spruce crates?

MR. JONES: Yes, and they were very satisfactory. Those that we got were about one cent more expensive, but were highly satisfactory.

FRUIT FREIGHTS.

By JAMES W. STEELE, Chicago.

The subject assigned me, "Fruit Freights," does not seem to be a captivating theme. Fruits are raised by professional growers and carried to market by the only available means, which is the railroad. Sometimes the business pays and sometimes it does not. In the field and in the market it has all varieties of vicissitudes, in which respect it does not differ from all human enterprises that are connected with the soil since that day when the man Adam with his wife went forth out of Eden, with a curse upon him, henceforth to eat his bread in the sweat of his brow.

The business of fruit-growing is very old, yet in many ways it is very new. The commercial orchard is new. There are men listening to what I say who can remember when there was no such thing; when the gnarled old orchard that stood behind the house, full of seedling trees, was the only source of supply. The fruit trade and the transportation problems accompanying it are things of but yesterday. The traffic, as such, may be said to have been born at about the time when California came forward with resources that have long since eclipsed all the stories of her golden age.

The most I shall be able to tell you of fruit freight is connected with the typical "long haul" of this country. It has items and examples that answer for all other localities and hauls and marketing conditions. The railway haul, gentlemen, is what you are interested in, after all other discussions of ways and means and the how and the why of tillage and product have been fully discussed.

It will be found upon investigation, however, that fruit freight is not freight at all under the usual meaning of that term. Ordinary cars are not

used, and the cars in which fruits are carried to market cost \$1200 each—more than twice as much as an ordinary box car.

All fruit-cars are built so that one of two processes can be used upon their contents. These processes are refrigeration and ventilation. There is an ice-box at each end of each car, and properly filled ice-boxes constitute the means of refrigeration. When not in use for ice, a hood that can be elevated at the top of the car over each ice-box catches the wind that is made by the movement of the car at the forward end and passes it through the car to an exit through a similar box at the rear end.

In summer all fruits except lemons are refrigerated. As a rule, every car loaded with fruit of any kind is refrigerated in summer and ventilated in winter. Constant watchfulness and care are required in both cases. Fruit in closed cars is not hurt by temperature that is seven below freezing. There is a standard thermometer in the caboose that governs. Each fruit-car has a stove provided for it. When the degree of cold requires this stove is used, while the car is standing still only; the heat thus produced being carried to the next stopping-place. There are times and conditions, also, when side ventilation is used, besides that already mentioned.

Nine thousand pounds of ice are required for each car as a beginning. This icing is renewed in hot weather six times between California and the market in Chicago; and when Chicago is reached the cars are iced again, to provide against the time required in unloading. At least 23,000 pounds of ice are required for a fruit-car on the road between California and Chicago, with seven renewals of supply on the journey. The cost of this is \$62.50 to the car.

There were for this year, 1904, 12,755 cars carried on the Santa Fe lines for citrus fruits alone.

The greatest trouble in the fruit-freight business grows out of carelessness. Connecting lines to which fruit-cars are transferred are not always acquainted with the beginnings. Their employees do not understand the constant care that must be continued to the journey's end.

The enormous and expensive fruit-car equipment does not apply to California business alone, but applies also to all that lies between California and Eastern markets. Kansas, for the most part, so far, ships apples. Ventilation, as mentioned, applies always. No charge is made above the freight rate for any car or any fruit-car appliance, patented or otherwise. There is a complete system for cars that carry less than car-loads. These cars are used on certain fixed days and trains. A little book—a kind of guide to shippers—tells, among other things, on what day these cars will be at given points, so that they may be used by local shippers of fruit and other perishable products. Where a man has, say, 5000 pounds, the same service is given him as for a full car-load, refrigeration, ventilation, and all, only to his case is applied the necessary and usual less-than-car-load rate.

Out of the whole number of fruit-cars carried, as mentioned, in 1904 (some 12,000), there were 6744 cars "diverted"; that is, they were changed en routs to go to ether markets than that designated in the original bill of lading. These changes are made without cost to the shipper, though at considerable expense to the company.

In many instances east of the Rocky Mountains, and where the conditions of through shipments do not apply, icing is charged at \$2.50 the ton, when the ice costs \$3.35. There are no great quantities of winter-made ice any-

where on the Santa Fe lines. Other lines to which transshipments are made can furnish it cheaper. The price is met and the loss assumed. This is one instance of what is known as "a rate modified by competition." There are many varieties of such cases, unknown to the general public.

Meantime, these fruit- and produce-trains are required to make a schedule time as fast as that of ordinary passenger-trains—not, of course, that, of the through mail-trains or the California limited. They are held to this schedule, and every locality on the lines between California and Chicago gets the benefit of these trains.

Kansas fruit-farmers demand and get refrigeration the same as trains loaded with California oranges. Even cabbages are often shipped under ice.

The cars used in this service, up to October 31, 1904, not including the through California trains, numbered 19,474—all Santa Fe cars on the Santa Fe line. Five thousand cars, each costing twice as much as an ordinary box car, are maintained and used in this service alone, together with a special corps of trained men.

This is a mere general and very brief and broad outline of the interior workings of the fruit-freight business as seen from the railroad side. Modified by time, by the growth of business, by the long experience of trained men, it has scores of features that hours of explanation would not make entirely plain. The farmer and the railway lines live and work together as a matter of absolute necessity. One cannot do without the other. The cases of complaint and dissatisfaction are rare when compared with the immensity of the business done. The farmer is an individual, working always as such. The railway is an immense whole working with thousands of individuals, any one of whom is liable at any time to make a mistake or to forget, and who necessarily does his work under a general system that cannot be changed in a moment, and even the modification of which is a work of time, training, and cost.

And then arises the question that you would like to have definitely, answered by me or by somebody in this immediate connection. What about the rate we pay for this service? Is it fair? Are we getting what we pay for?

Gentlemen, I remarked a while ago that we were in the beginning of strange times, and perhaps times that are crucial. Many questions require settlement, that of railroad rates among others. Probably no large number of intelligent men will deny that railways are public corporations. As common carriers, the tradition, the belief, that they are subject to regulation by law runs back 500 years. I cannot talk generally or declaim with any authority about the proper course for the Congress or any state legislature to pursue upon this much-agitated subject of regulating rates by law, but let me say this, that the truest of all ancient maxims is this: "That the truth lies between two extremes." No man, or body of men, has ever made a mistake in acting upon that maxim.

Nearly all of the lines of the nearly 10,000 miles of the Santa Fe system are agricultural lines. The tonnage comes mainly from the soil. There was never a tremendous fact more easily stated. It is a fact that seems to mean little, yet means all. The farmer and his railway line are inseparably connected, and for all time. Both must live and let live. Two individuals in ordinary life cannot prey upon each other and both survive. Suppose that the prosperity of each depends absolutely upon the well-being of the other, and that both know it. It becomes then a case in which the law of "the

survival of the fittest" is set aside. No question between them can be settled by the arbitrary will of either the one or the other, even though each will shall be based absolutely upon a sense of what is right.

There is something curious about this remarkable community of interests between the producer and the carrier that I want to call your attention to very briefly.

When these Western lines were built there was nothing else there. The railways were the first occupants of the wilderness and were always the chief factors in the beginnings of that growth into opulence and independence that has astonished the world. This fact, as stated, if considered alone, is one of the most astonishing in the history of human progress. We are accustomed to it and never think about it, and it excites neither wonder nor comment. But if we did think of it oftener, another reflection would bear it company, and that is, that railroad rates, as practiced year by year, in these new communities, carrying everything that was wanted to them, and everything that was sold by them away, have resulted in the destruction of no industries but in the manifest and constant building-up of all. From the beginning of every Western railroad it has necessarily been its business to build up and continually foster all the producing interests of every community touched by any of its lines. It was by the practice of this policy alone that the Western roads could hope to live. To be intentionally unfair, unjust, discriminating in the making of rates, would have argued an intention to defeat the hopes and intentions with which the lines were built across vast stretches of country that at the time of building had not a civilized inhabitant, and in which everything a railroad exists for had to be built up and established out of raw prairie.

As in all human things mistakes have been made. Adjustments and readjustments of railway rates have been made hundreds of times. Conditions and situations have changed in minor particulars so often that what has been fair and just at one time has been declared to be unfair and unjust at another. In such cases, during the entire general history of the Western lines, the remedy has been applied as soon as the actual cause of the trouble could be definitely known. No one needs to ask why, because the question is answered by the always existing situation stated above. The railroads and the communities they serve have a mutuality of interests and a relationship which is incapable of being annulled. More than that, if they were annulled the community might still continue to live and prosper, but the railroads could not. They know it. Mistakes may be, and are, temporarily made, but a moment's consideration of the evident facts of the situation by an intelligent man will make charges of oppression, intentional wrong, wilful suppression of or hardship to any industry, by any railroad line, seem almost absurd.

There is more talk, and much of it may be called hard talk, about the railroads and their exactions during the last few months than ever before. The president, with his immease majorities behind him, honored alike for his honesty and courage and his common sense, has in his latest message called for action by the national Congress. The coming state legislatures are doubtless contemplating action upon the same subject. Now, let me say to you that no railway "magnate," so-called, desires to prevent legislative action. That which he fears is action that will be prompted and governed by an undiscriminating popular clamor.

For what the Congress and the state legislatures may attempt to accomplish is no light and easy task. For the whole vast and complicated science of transportation is new. Men have not learned it, and cannot learn it, as an exact science, because all of its facts will not be known until the changes caused by constant growth and progress have ceased to recur. Not only is the science of transportation new, but, also, is the region in which nearly all the questions about the adjustment of rates arise. Both are in a formative state. If transportation were an old science, with fixed laws that could be taught in a college, the newness of the great Western country, with many of its resources as yet undiscovered, and something new always arising, would render all school-taught rules useless. As new wants and necessities arise new transportation problems arise with them. No greater mistake could arise than that a mile is a mile, and a ton is a ton; fix a "reasonable" charge and there is an end.

Why, gentlemen, it was simply the common belief in a few easily stated and unquestioned facts that produced in their time some of the strangest events in human history. The entire story of the crusades, the facts of which are incredible to the modern understanding, was probably produced by the simple declaration that the place where the dead Christ had lain was in the hands of the "infidel." All the millions of Mohammedans gathered their enthusiasm in the beginning, and keep it still, from the simple declaration that "God is God and Mohammed is His prophet."

The task of "regulating" railway tariffs, so lightly considered by thousands of intelligent and well-meaning people, is a heavier one than they suspect. The railways of the United States now haul every year property worth 22,000 million dollars. Let whoever can grasp the magnitude of such figures. The rates paid for this service amount to 1900 million dollars. It is safe to say that no one, with all the discussion so far had, has approached the subject with anything like an adequate remedy for the evils alleged to exist.

On the side of the railways the question may be asked, "What do they want?" I cannot answer the question, but I can venture a guess. They want the rates that shall be adjusted by law to pass through the hands and the brains of trained and experienced men. They want adjustment to be made that will show that the magnitude of the problem is known and considered. The consequences of mistakes will be great not to the railroads alone but also to the people. Time, pains, labor, experience, high integrity—these should all go to the making of whatever body of men shall be given the gigantic task of standing as arbiters of the enormous interests involved. All of these men should be out of politics and independent of it. The votegetting party issue is the most dangerous element that can enter into the adjustment of any economic question.

There are two sides—two enormous sides—involved in what is now known as the "railroad question." If I were the owner of a voice as influential and far-reaching as human ambition could desire, I should simply, as the first thing, revert again to the ancient wisdom that there are "two sides to everything"; that "the truth lies between two extremes"; and that the ultimate design of all law is that justice—nothing more and nothing less—shall be done between man and man. That one of the parties may be a corporation, with immense interests, immense wealth, and immense responsibilities, does not make the slightest difference.

To conclude, there are two or three facts in connection with this rate question that are rarely mentioned but that ought to be considered.

One of these facts is, that complaints of the rate charged are unusual. The usual complaint is that there is discrimination—that rates are made that are unjust as compared with others existing under similar circumstances.

Unfortunately the railroad business has never been exempt from the usual methods that are practiced by business men all over the world. Everybody in every other business has considered it to be within his natural right to force concessions from a railroad if he could. The competition in business has been fiercer and more rapacious in recent years than ever before. The cause of what are known as discriminating rates has been the natural competition for business between the lines, existing under a thousand varying circumstances, but always existing.

Twenty years ago or more the railroads invented a system to prevent the very thing the public now complains of. Discriminations and rebates were impossible under its workings. It became odious to the public and was suppressed by law. It was known in its day as the "pool."

Time and experience bring their lessons. The pool had its virtues and was not altogether bad. There are hundreds of thinking men, and honest men—experts, besides, in the science of rate-making, as far as that science has gone—who believe that under laws that shall control rates, that shall fix the uttermost prices for the only commodity the railroads have to sell, the necessary adjunct to insure success must be the revival of the condemned system of pooling. They understand, these railroad men, as well as you do, that pooling under uncontrolled rates may easily be turned into a trust. It is in connection with controlled rates that an ancient vice may be turned into a virtue. All the reasons why would fill a book. Laying aside all preconceived ideas, the subject is worth the best thought and investigation of those in whose hands shall be placed the making of the laws that regulate the details of the most extensive and far-reaching business the world has ever known.

LAND.

By EDWIN TAYLOR, Edwardsville.

If I am permitted, I would like to say that if any friend suggests that my practice and my precept with respect to land do not correspond, I will admit the justice of his criticism. I have played the land game according to the rules I have found in force. These rules I consider unjust and unwise, but I alone cannot change them. I am going to continue in the game, and to my friend who suggests that my topic is inappropriate to this occasion, my reply would be, that in consequence of the fact that horticulture, as commonly pursued, is done upon a much smaller scale, with respect to the land it occupies, than other lines of agriculture, I deem it appropriate before horticulturists and their friends briefly to discuss the question of land.

Land is scarce. Barely one-fourth of our land is habitable, and that portion is crowded. The result is a land-hunger that began at least as far back as when our Aryan ancestors swarmed over the Oxus to occupy the lands of the west. In America the land-hunger was easily satisfied so long as the government had land for all comers. From the first settlement of New England till now, when the public tillable, non-irrigated land may be called

exhausted, the annual encroachment of our population upon the wild may be roughly stated as a strip thirteen miles wide, reaching from our southern to our northern territory.

What the effect has been upon our institutions and ourselves of this yearly opening up of new land under new conditions, the old conventions and prescriptions and pretensions laid aside, and a new thirteen miles wide of people starting fair and free and even in the race of life—all this makes one of the most interesting questions that can be proposed. A close analysis of that question would no doubt surprise us all with its showing of the extent to which our development, and our aspirations even, are influenced by our physical and social conditions.

But that is all over now. Uncle Sam is no longer "rich enough to give

us each a farm." The people increase but the land does not. The land-hunger becomes more and more insistent. The natural result would seem to be a further division of the land. Instead of subdivision, however, there is addition. Instead of more farms there are fewer farms in the older states, while in Kansas the farmers are so rapidly passing into, or giving place to, the tenant or renter class that there was an increase of seven per cent. in the latter over the former between 1890 and 1900, as shown by the United States census. If we could look at the situation without the bias of self-interest or prejudice or preconception, I am sure that few of us would ap-

prove of a condition which makes a constant increase in the ranks of those who, living on the land, are shorn of their interest in the land. It does not seem to me that a judicial minded inhabitant of Mars, for example, regarding us impartially and curiously over the edge of his fiery disk, would favor the continuance of our conditions of land-tenure which insure that an ever-increasing proportion of our farmers shall go drifting up and down the state, unattached to the soil, homeless, with only a transient interest in church or school or highway, inevitably growing indifferent to the outcome of things, as father and son settle down to the conviction that for them the door of hope is forever closed.

If assertion is made that sufficient energy and economy and persistence and skill and hard work on the part of these renters would lift them out of the slough they are in, then I reply that their escape is made impossible, except for a few choice spirits among them, by two conditions, viz., their own limitations and their landlord's exactions. Speaking broadly of the business of land-leasing, it will not be disputed, perhaps, that lands are rented for the most they will bring. Both in and out of Kansas the standard of land-rental is fixed at a line where a few extra-capable renters can break out, while the majority must fall back. In Wyandotte county land-rent has advanced from four dollars per acre to ten dollars per acre in thirty years. With every substantial increase in the population of that county, or any other county, there will be a corresponding advance in rent.

The limitations of the tenant as to thrift, under certain conditions and within a variable margin, are fixed, just as the limitations of the landlord are fixed. How miserably most of us fall down in our farming and the race of life generally compared with such stupendous successes as our Brother Robison's, for example, who, through a long life and in many lines of effort, has been continuously capturing prizes. We have n't kept up with him because we could not. We have done our best; the average renter does his best; and it is a shallow critic who berates us for not outdoing ourselves or

berates the tenant for not going beyond his limit. It is just as impossible for the average man to rise from day-laborer to share-renter, and from renting on shares to cash rental, and from cash rental to the ownership of valuable lands, like Herman Theden or Pete Sandberg, as it is for him to lift Mr. Winship's load of a ton or do a stunt with the mitts like Champion Jeffries. My contention is, that since it is impossible for the average tenant to win a farm under present regulations respecting land which serve the landowner as a whip-row against him, a wise statesmanship would bring such pressure to bear upon the ewner of plural farms or excessive holdings as would make them let go of a portion, so that the door of hope might stand ajar for the landless.

Land has not always been under its present status. Not so very long ago, when a nobleman got a principality by purchase or gift from the king, he got the population thrown in. The people don't go with the land any more. If a coal baron or railroad wrecker should buy up Shawnee county, for instance, he would acquire no rights over the citizens, more than the right to run them off. There is an individual who has a tract in the Adirondacks similar in size to Shawnee county which he has fenced up for a game-preserve. Well, suppose my figurative coal baron, having bought up Shawnee county, should conclude to fence it in for a game pasture, thus practically wiping one of the best counties in the state off the map, do you think Kansas would stand for it? Why, to prevent it she would invoke, if necessary, that higher law to which she appealed in her glorious youth. Suppose, again, that my baron should conclude, instead of filling the county with game, to fill it with renters, renting on shares, renting for cash, renting any old way. From what we know of the rental system and its effects, do you judge that that would conduce to the prosperity of Shawnee county? If you say No, as you must, then I inquire what is the difference, except in degree, between a thousand renters and one renter? For my part, I believe in one wife and one farm for one man, and I object to Mormonism in either wives or land.

If it should be claimed that farming is a business subject to the economic ins and outs of other businesses, and that farms are property subject to the desires, and whims even, of the owners, the same as other property, then my answer is a refusal to consider those features of landholding as the features which should control. The time has passed for the maxims of economic science to apply with respect to land, just as they fail elsewhere under conditions of stress. The rights of person, as well as property, go down under common calamity or public necessity. The right of the citizen to walk abroad is a cherished privilege; but when the citizen has the smallpox for his unwelcome guest the armed guard at his door has orders to shoot him should he persist in going out. Let the inhabitant of this borough (Topeka) attempt to provide against the household necessity for lard and hams by fostering the development in his back yard (on his own premises, mind you) of divers and sundry hegs, and forthwith will appear the guardian of the law, acting in accord with the city ordinance in such case made and provided, who will break up the sty, confiscate the swine, and give the offender a ride in the "Black Maria." Hog-raising, per se, is as innocent a diversion as ever kept a man from idleness, but it is not innocent when it hurts the public. In like manner, when the public is hurt by excessive ownership of land, with hirelings or tenants where otherwise independent farmowners might have their humble dwellings and send out from thence those sturdy, self-reliant sons and daughters that America needs far more than bumper crops or bank reserves, then the question of landownership passes over from the realm of economics to considerations of public defense.

A review of the sins of others is often edifying where a similar inquiry into our own sins would be extremely distasteful if not positively irritating; so, instead of finding an example of pernicious land practices in Kansas, let us go over into Iowa, and take the case of a gentleman bearing an honored name who owns and cultivates in corn there 20,000 acres, with a few foremen and a herd of horses that stay on the place, and an army of men who come and go, while he lives in Boston. This farm occupies, roundly speaking, a township of land. There is not a home on it. Twenty-four such farms, without a home, would match Shawnee county in size, and 105 such counties without a home would make another Kansas, and forty-five such states, a homeless Union. How long would it stand, think you? Some one has said, what I believe to be profoundly true, that the homes of a nation are its strongest forts. In my estimation, America has suffered more from the spirit of greed within, which has kept millions of home forts from going up, than ever she did from hostile forces without. As an enterprise, the bonanza farm is often admirable in its management, but as a factor in our national life it cannot escape conviction (when its trial comes, as it will come, for this high crime) that it deprives the farm worker within its scope of a stake in the country, thereby inevitably dissipating some portion of that attachment for the native land which we call patriotism, thus weakening the defensive power of the state.

In horticultural circles there is frequent and appreciative reference to the remark which Swift puts into the mouth of the king of the Brobdignags, to the effect that whoever makes two blades of grass grow where but one grew before is a benefactor of mankind. If that principle be declared laudable, then what, in justice, should be said of a proposition such as I now advance, which will make two men grow where one grew before?

If the Russians were to appear at the mouth of the Kaw and do with the Kansas fishing fleet there as they did with the British on the Dogger Bank, what a stir it would make? I ask if the hurt of a plowman is less important than that of a fisherman, or if the damage done by a domestic land-shark is less deserving of rebuke than that done by a foreign man of war? Do you ask what injuries land monopoly and its handmaid, the tenant system, entail? I reply that every time a possible resident farm-owner is kept out by a non-resident landlord and a tenant put in the place, Kansas suffers. She suffers by having had shift and change substituted for permanency. She suffers because under tenantry there is stopped the planting of the rosebush and the lilac; because the rooftree is changed from an essential feature of a home, with all its strengthening and refining influences, to an uncertain shelter; because it makes hard the lives of men and women; because it thwarts the natural desire of childhood to find anchorage for its little soul and feel itself a part of things, giving it, instead, a dwarfing sense of alienage and servitude.

If any landowner draws on me his title-deeds and the constitution and the laws, my reply to it all is that any system which works the accumulation of wealth through the decay of men bears within itself the seeds of its own

destruction, not preventable by either legislature or courts. That ultimate end may not be so far away.

The legislature of Arkansas once enacted that thereafter the keeping of a dog above ground should constitute a "privilege" which might not be lawfully exercised in Arkansas without the payment of certain license fees running to the state, highly discouraging to dogs. This was done, as recited in the act, to stimulate sheep-raising in Arkansas, and was justified on the ground that it would conduce to the public welfare. By a parity of reasoning, why might not the Kansas legislature enact that the holding of land out of use or in excess of what should be defined in law as a "homestead" shall constitute a "privilege" to be exercised only upon payment to the state, in addition to the ordinary property tax, of an annual license, for a populous county like Shawnee, of, say, ten dollars per acre? I am not a lawyer, but it appears clear to a layman that if it is constitutional to oppress a dog-owner to help a wool-grower for the public good, a land-grabber may be oppressed to help a homesteader for the public good. The crux of the matter lies in the answer to the question, What is for the public good? That answer is made for each sovereign state, speaking for itself through its creature and mouthpiece, the legislature. Acting upon this prerogative, the Kansas legislature, under instruction from the state, has prohibited, with certain exceptions, the liquor business, within our borders; she may on the same ground, with such exceptions as she chooses to make, prohibit the realestate business. Manifestly, if she can break up a beer traffic, as she did Walruff's, and was sustained in it by the supreme court, to keep men from being made drunken, she can break up a land traffic to keep them from being made homeless.

When Savonarola set up his government in Florence, he based it upon four propositions, the second of which was: "Promotion of the public welfare in preference to private interests." I look forward to a good time coming when by that touchstone all our legislation will be tried.

Fifty years ago if one had spoken of property in men as I have spoken of property in land he would have been mobbed in any populous center of America, and in any one of the fifteen slave states he would have been hung. The slave-owner then said: "That 'nigger' is mine; bought and paid for and abstract furnished," just as the landowner now says of his farms. The landowner and the slaveholder then had in common what remains only to the landowner—the law, the influence of the church, and the inertia of society. A few dreadful years passed, and the slaveholder had no "nigger." The slave had been his in law—but in equity, never. I leave you to say whether the division of land, as we have it, is based on equity or not.

Monopoly is a word the American public is impatient of, and the meanest monopoly of all is the monopoly of land beyond the requirements of a home and a livelihood. It is a monopoly that will not always stand. We can choose between its gradual and peaceful extinction and its sudden going out in strife and distress. If you smile at my dismal prophecy, bear in mind that both North and South either laughed at or scourged the earlier abolitionists. Society had no patience then to hear discussed the wrong and harmfulness of slavery. Its Nemesis came when for four long and awful years it gave itself wholly to that discussion. I draw no parallel between that situation and this. I merely say that a wrong thing is not a safe thing, and that land

monopoly, further than the reasonable limits of a homestead, whether measured by the golden rule or the good of the state, is wrong. The time has come for us to recast our notions respecting property in land, and take closer account of those ideals of universal well-being set up by the Man of Nazareth twenty centuries ago.

FRUIT-GROWING IN THE PACIFIC NORTHWEST.

By ROBERT MILLIERN, Secretary of Idaho State Horticultural Society, Nampa, Idaho.

The following notes relating to the horticultural interests of this far-away region are prompted by a request from your very efficient and energetic secretary for something for this meeting, in response to which I suggested some months ago that I would try and send a few comments on the fruit-growing interests of the Pacific Northwest, and have outlined this paper on the general features of the territory as a whole, and then devoted some attention to Idaho in particular.

A residence of almost a quarter of a century in Kansas, most of the time closely identified with the horticultural interests of the state and its Horticultural Society, prompts me, since my residence of about half as long in the Northwest, mentally to revert to the conditions prevailing in the older states and compare them with those by which I am confronted in this newer region.

In the Pacific Northwest I include the states of Oregon, Washington, and Idaho, British Columbia, and a part of the state of Montana. All of this region, while containing a great diversity of mountain, plain, and valley, has much in common in the way of climatic conditions pertaining to the culture of the standard kinds of fruit.

As the Middle West I have in mind Kansas and her neighboring states of Nebraska, Iowa, and Missouri, lying in what is usually termed the Missouri valley. In this Pacific Northwest many of the conditions prevailing in the Missouri valley are completely reversed. The course of the rivers and the general drainage is toward the west and the northwest, just the opposite to that of the other region. The cold side of the house is the south side in winter, the warm winds coming from the west or Pacific Ocean side. It is difficult to make people not personally acquainted with the facts understand that the average annual temperature of this part of Idaho in the latitude of 43½ degrees north is almost identical with that of Louisville and Washington, and that zero weather in the winter does not occur in three years out of five.

In the northern part of this state, 300 miles north of this place, I have been told that potatoes are the most troublesome weeds the farmers have to contend with. Heavy snows, falling before the ground freezes in the fall and remaining all winter, protect the tubers, so that they are ready to germinate on the advent of spring.

These are some of the natural conditions to be taken into the reckoning in comparing this with other parts of the country. This, of course, has reference to the intermountain region, east of the Cascade range of mountains. I do not wish to be understood as asserting that these conditions exist over the entire area of the five Northwestern states. These conditions have reference chiefly to northern and southwestern Idaho, eastern Oregon.

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and eastern Washington. A great diversity of climatic conditions exists in the region under consideration, and a great variety of climatic variation may be found in each of the states. The territory included in the area is not all adapted to fruit-culture, nor is it all good agricultural land. Throughout the entire region are many mountainous sections, some of them extremely rugged and precipitous, richly endowed with the precious metals, and some of the grandest mountain scenery in the world.

Your own William Allen White, of Emporia, Kan., in his account of a trip to the great Thunder Mountain mining camp, in central Idaho, about two years ago, in depicting some of the grand mountain scenery observed on his trip, remarked that there was a lot of the scenery left there yet for such as would go after it. But it is not of scenery I started to write, but of something more substantial and satisfying.

All over this territory there are great beds of precious metals, giving rise to great mining camps, where are employed thousands of hardy workers, delving in the rock-ribbed hills or washing the shifting sands, extracting the wealth of their precious stones. These mining camps are important factors in the fruit-growing industry in affording a local market near home for a large per cent. of the output of the neighboring valleys. Interspersed between the mountains in all of the states named are sections peculiarly adapted to fruit-growing—seme to one kind and some to others—in which certain kinds of fruit attain particular excellence.

Allow me briefly to outline some of the more-noted sections, most of which are in the valleys. The most noted one, next to the Snake River valley, in southern Idaho, is the area west of the Cascade mountains in Oregon, extending north from near the California line to Puget Sound, in Washington, and beyond into British Columbia. In Oregon this area is drained by the Willamette, the Coos, the Umpqua and the Rogue rivers. The first flows northward down the trough of the valley and the other three cut across the low coast range to the Pacific ocean. The trough or valley extends and widens somewhat to Puget Sound and on to Fraser river, in British Columbia. Rogue River valley produces excellent apples, having some of the finest apple orchards on the continent, wherein are grown Yellow Newtowns and Spitzenburgs, excelled by none anywhere, not excepting the noted region of Virginia and North Carolina. The Coos River valley is noted for the fine quality of apples which it sends out, and the famous Willamette valley has given Oregon a world-wide reputation for cherries, pears, and prunes. More sweet cherries are produced in the Willamette valley than in all the rest of the United States together, and its output of prunes is reckoned by car-loads and hundreds of tons, the Italian prune being the one mostly produced.

Across the Columbia river, to the north, in Washington, the same favorable conditions exist, but in a modified degree. The protection this valley possesses from the cold winds of the interior, on account of the high mountains forming the eastern boundary and the modifying influence of the breezes from the ocean, only 100 to 150 miles distant, gives a particularly mild and equable climate, the winter temperature seldom falling more than a few degrees below the point of freezing. In the lower part of the valley figs, English walnuts, soft-shelled almonds and like sorts are generally grown, and tea-roses thrive and bloom almost the entire winter. The people of Portland are desirous of having it generally known as the "city of

roses," and are preparing to demonstrate to those fortunate enough to visit the Lewis and Clark world's fair that it is a well-earned title.

The next most important fruit section of Oregon, and one which has attracted no little attention to itself lately, is Hood river, a narrow valley in the Cascade mountains, taking its rise on the skirts of Mount Hood and running northeasterly into the Columbia, about sixty miles to the east of the Willamette. In this valley strawberries and apples are given particular attention.

Eastern Washington and northern Idaho consist of an extensive plateau, having much in common, nearly all of which is well adapted to fruit culture and which can hardly be separated, so close are the natural conditions and the commercial relations. The Palouse country, originating in Idaho and extending westwardly about 140 miles, occupies an important position. It is drained by the Palouse river and its tributaries and is about 100 miles from north to south; but from northeast to southwest, including the panhandle of Idaho in the upper end and the Walla Walla valley on the southwest, it is over 200 miles in extent. Spokane, Wash., and Lewiston, Idaho, are the chief cities and centers of commercial industry. Walla Walla and Lewiston are at low altitudes, having respectively 1018 and 757 feet elevation above sea-level. These valleys, being particularly well sheltered by protecting bluffs on the north, are favorable sections for the production of the more tender fruits. I will speak of Lewiston later on, but in passing would say that the Walla Walla valley is noted for its apples, pears, peaches, and small fruits. The uplands, extending away to the British line, are dotted with magnificent orchards of apples, pears, and prunes, finding an eager market in the mining camps of the Cœur d' Alene mountains, Montana, and the cities of Minneapolis, St. Paul, and along the Great Lakes.

The Yakima valley, in central Washington, is assuming importance as a fruit-growing region, under irrigation, but is comparatively new yet. Many promising apple and prune orchards are now in bearing and the territory will be heard from in the not very distant future.

Not having visited British Columbia, my knowledge of its fruit interests are acquired by hearsay and by analogy to those of Oregon and Washington, of which I am personally cognizant.

Having thus briefly outlined the general conditions, I will now address myself to my adopted state, Idaho, the "gem of the mountains."

Idaho is distinctively a mountain state and a mining state, fully four-fifths of its area being covered with mountains. Its stock-raising interests are quite extensive, as are also the timber interests, but the mining interests dominate all the others. There are two fruit-growing regions in the state, although a limited amount of the more hardy fruits are produced in every part of the state.

The panhandle or northern part of the state, already referred to, extending north from the Salmon river to the British line, is one of them. This section has an area from north to south of approximately 180 miles and a width of from 50 to 75 miles. (Take notice that Idaho has an extension of 420 miles from north to south and, on the south line, of 300 miles from east to west.)

The two sections in which the greater part of the orchard products of the state are at present produced differ in many particulars. The northern section is in general a plateau or table-land, the greater part of the cultivated

area being the ridges and uplands, only a limited area of river bottom being adapted to fruit culture. The Clearwater river takes its rise in the Bitter Root range of the Rocky Mountains (which form the dividing line between Idaho and Montana) and flows to the west across the state some distance north of the middle. In the valley of this river begins the northern fruit area, which, as before noted, extends, with occasional interruptions, to the north line of the state. On the ridges and broader plateaus are large orchards of apples and prunes, with occasional orchards of cherries and peaches.

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In the lower valleys, particularly near Lewiston, at the confluence of the Clearwater with the Snake, great attention is given to the cultivation of the finer grapes, there being many large vineyards of Black Hamburg, Black Prince, Flame Tokay, Royal Muscadine, Sweetwater, etc. There are a number of large vineyards at Lewiston with extensive wine-cellars. It is claimed that the conditions in the lower Clearwater and adjacent valleys of the Salmon and Snake rivers are, for the production of the finer grapes, equaled by only a small part of the grape-growing regions of California. Not all are made into wine, but many car-loads find their way to the markets east of the mountains and to the mining camps of the mountain country. Sweet cherries, apricots and peaches are grown very extensively in these valleys on the rich, alluvial bottom lands and on the lower slopes of the encompassing hills.

In the southern part of the state lies a great fruit-growing section, principally in the lower part of the valley of the Snake river and its more important tributaries. This great watercourse, taking its rise in the Yellowstone National Park, flows for nearly 600 miles through and along the western boundary of Idaho. In its course to the west through the state, to where it makes its detour to the north, to carve its channel across the great plateau forming a large part of central Idaho and northeastern Oregon, it flows through a great valley more than 400 miles long and varying in width from twenty to fifty miles, bounded on both sides by high ranges of mountains which protect it from extremes of cold. The upper or eastern end of this valley for about half its length attains such an altitude that, except for the hardier fruits, it is not well adapted. There are a number of successful orchards of apples, cherries, pears and plums to be found well up to 5000 or 6000 feet above sea-level, but, excepting well-sheltered valleys, not much interest is taken in orcharding. It is of the lower or westerly 150 miles of this valley that Idaho looks for her reputation as a fruit-growing state. Extensive development has already been made in the Boise and Payette valleys of this section, and there the greatest development of the fruit-growing industry of Idahe has been attained.

In all this region no culture is attempted except under irrigation, the entire valley being in what is known as an arid region. While it is said that irrigation is not a complete substitute for r infall, rain is a very poor substitute for irrigation. In an irrigated country there are no failures from drought, although diminution of yield may occasionally result, but entire failure of crops but rarely occurs. Under irrigation are produced the most delicious crops of fruits and vegetables. Conditions exist in irrigated countries that are not found in humid regions. Given a dry atmosphere, thirsty for the moisture of the soil, a rich volcanic soil, abundantly supplied with the elements of plant-food, and a sufficient supply of water, and by the proper

application of intelligence in combining these factors the results are marvelous.

In the wood growth, the plant-food being liberated by the application of the water at the right time and in the proper quantity, it is taken up by the roots of the growing tree and freely and eagerly pumped out by the ever thirsty atmosphere, which is eagerly taking all it can get and calling for more. The sun penetrates freely through the thin dry air, causing such activity of the generative forces as is not possible in a humid atmosphere. The growth is not coarse and soft, as in warm, moist climates, but the wood growth is close-grained, fine, and firm, and much greater in quantity than in the older states. Nursery-trees attain as great size in one and two years here as in double the time in the Missouri valley; one-year apple and pear trees six feet in height being of frequent occurrence, and prune, plum and peach of seven to eight feet are not uncommon, with a firmness of texture superior to those of the states to the east of the mountains.

The fruit partakes of the same characteristics, the great amount of sunshine, 300 days in the year, producing a superior coloring, and the intense activity of the vegetal forces intensifying the fruit juices, giving the fruits a high degree of flavor and nourishing qualities. Fruits grown in these valleys, and under the conditions indicated, have a keeping quality peculiarly their own. For curing, evaporating, drying, and preserving, fruits of the arid regions have shown themselves superior; analysis of prunes and other evaporated fruits giving a much higher sugar per cent, than any others on the coast. From these facts it is plain wherein Idaho fruits have the advantage over those of other regions. The Missouri valley may produce as large fruits and as highly colored, but in practice they do not stand up under shipment to distant market; nor do they make the favorable showing in the chemist's laboratory. Apples are the leading fruit in this section, although there are many thousands of acres of Italian prunes, and in no place with which I am familiar do pears thrive better than in this lower Snake River valley. Pears have begun to show effects of the blight in some parts of the valley during the last two or three years, which is causing some alarm, and may have the effect of retarding pear culture in the future.

Early bearing is one of the peculiarities of the fruit-trees in irrigated orchards. While generally a profuse growth of wood retards early fruitfulness, under irrigation and the intense force of the sun in this arid atmosphere it is the common experience for apples and prunes to begin bearing in the third season from planting, cherries the second, and pears the third or fourth. Not only are the trees protected in age, but later the quantity of fruit that will set on the trees under judicious cultivation and irrigation is beyond the understanding of people not familiar with the conditions. I have seen trees full of fruit in Kansas, Illinois, and Missouri, but until I saw Idaho orchards loaded with these crops, I never saw trees loaded. This is not exceptional, but occurs year after year, since under irrigation the alternate or off year for bearing habit is, to a great extent, eliminated, so that, barring spring frosts or other accidents, there are no off years.

In packing fruits for market, following the prevailing style of all the Western slope, the bushel box for apples is invariably used. For pears a smaller box, having the same length and width as the apple box, but not so deep, holding about two-thirds of a bushel, is used. Peaches and cherries

are put in smaller boxes specially adapted to their requirements, varying in style somewhat in different sections.

Many car-loads of plums and prunes are shipped in the fresh or whole stage, almost invariably in crates holding four flat baskets, resembling berry baskets in form, but holding about four pounds to the basket. The proper packing of fruit, particularly if it is intended for a distant market, requires skill and a discriminating taste. First-class, and in some cases second-grade, apples are always packed in the boxes in tiers of from three to five, according to size of apples and size of box used. To properly select the right size and shape of apples to fit in the box and have the tiers come out even and the box just full enough and not too full requires a careful hand and a quick eye; so that a good packer always has a soft snap awaiting him or her during the packing season. Pears are not so carefully packed, being mostly wrapped in papers, as are oranges and lemons, and put in so as to fit closely and not shift in the handling of the boxes. Prunes are packed in tiers in the baskets, from four to six each way being the most common method, according to size and kind.

In the cultivation and handling of small fruits the methods differ but little from those prevailing in your state. At Hood River, Ore., an industry has been created in the careful handling and marketing of strawberries that has made "Hood River berries" a standard of excellence from the Great Lakes to the Pacific ocean. This has been brought about by careful, honest packing, of a uniform standard, and intelligent and judicious advertising of the products. The berries are carefully assorted and nicely packed, being of uniform size throughout the box, and the top carefully laid in tiers, with the calyx down and out of sight. Hood River berries have been shipped successfully to Boston. This is not a matter of locality nor of soil and climate wholly, but of care in growing carefully, on congenial soil, a variety especially adapted to the kind of treatment accorded to it, and may be done in many other places in this Northwest, if given the same careful business attention to the management as is done at Hood River.

There are many other points of interest in connection with the fruit industry of this part of the country about which I would like to write, but the length which this communication has already reached admonishes me that I must draw to a close. I do not wish you to understand that it is all sunshine with the orchardist out here, although we have more than 300 sunshiny days in the year, and it rarely rains in this valley between the middle of May and October.

Diseases and insect ravages have to be met with and their destructive work counteracted. When I came to Idaho, in 1892, I found large areas into which the codling-moth had not yet penetrated, but now it is almost omnipresent, and under the favorable climatic conditions it multiplies prodigiously, and must be met promptly with the spray-pump. So of the San Jose scale, which is getting pretty well distributed throughout all the orchard sections of Idaho and neighboring states. This is not so formidable a foe as is the codling-moth, but by eternal vigilance, under one of the best protective laws in the United States, it is not considered a very dangerous pest. These are our most serious foes to the orchard, but aphides (plant-lice) are abundant on almost every species of horticultural products, and while they are quite annoying, they are not reckoned as very dangerous enemies, unless I might except the woolly aphis of the apple. Pear-blight has recently invaded this

valley, and is causing a good deal of consternation amongst the owners of the orchards. Most of this Northwest is comparatively exempt from the numerous foes which in your country infest and destroy so many apple, pear and peach trees, but I suppose it will only be a question of time when they will follow the pear-blight and codling-meth, and we will be obliged to fight them also. The most pestiferous foe the fruit-grower here has to combat, and one that gives him the most trouble, is the high freight rate to the market of the East, where a large per cent. of the best products of his orchard must go for sale. The fight is on and the warfare is being conducted vigorously, with favorable results occasionally. Much yet remains to be done.

I trust these desultory remarks may contain something of interest to you and the Society, of which I have been a member now just thirty years the 16th day of this month.

SECOND DAY-Morning Session.

WEDNESDAY, December 28, 1904.

The meeting was called to order at nine o'clock A. M. by President Wellhouse.

Mr. YAW: I wish to show you now the mode of trapping the codlingmoth larvæ. Here it is-an old cloth; you can all see it. It was put around the trunk of the tree about June 20. July 10 I took that cloth off, for by August 1 they are all hatched out, and you would not find a live worm there. By August 1 the first brood are out depositing the second lot of eggs. Here is an old piece of carpet that was put on the tree. I took it off the day before I started here. You will find live worms on it, lots of them. Many of them were sticking on the tree, under the bark. By placing this cloth around the tree the larva comes out of the apple and goes down to the ground by a web, and then goes up the bark of the tree and under the cloth. By taking the cloth off every week or ten days, whenever convenient, and scalding it, and putting it back again, you destroy all of the larvæ on it. If every one who has a tree would adopt that plan every codling-moth would be wiped out of existence; but no, you have not the time. You can see it does not require any special cloth. Here is an old piece of overalls, the second is a piece of carpet, and next an old piece of gunny-sack. It not only traps the codling-moth, but the curculio as well. You understand the curculio goes to the ground at night, and only flies during the breeding season. Whenever there is wind, or damp, or anything of that kind, they go to the ground. Put the cloth around the tree the same as for the codling-moth.

A MEMBER: Would it not be as effective for the canker-worm?

MR. YAW: Yes, anything at all that crawls up the tree. You should go over your plum trees every two or three days. I take an old pan or bucket, or anything that will hold water, and put a little coal-oil in it. You can shake them into the bucket or throw them into a tub of hot water.

A MEMBER: How many plum trees have you?

MR. YAW: Four hundred.

A MEMBER: How long does it take you to do this?

MR. YAW: Perhaps the greater part of an afternoon. Anybody can do it.

A MEMBER: Did you ever try paper in the same way?

MR. YAW: Yes.

A MEMBER: Did you have any success?

MR. YAW: No, sir; the paper was too slick.

A MEMBER: Have you tried it sufficiently to know the result on your

fruit crop?

Mr. Yaw: Yes. Four years ago I had a cloth something similar to this, but it was larger and wider. I took it off about the 1st of September, or a little later, after all the larvæ had escaped from the apples. By actual count there were 520 cocoons on that cloth. You can figure how many apples were saved by destroying the larvæ from that one tree.

A MEMBER: It is estimated that they have a capacity of 200 young for each female. But you did not tell us what your results were in your fruit crop compared with those who did not use the same remedy.

Mr. YAW: Fifty per cent. greater any way.

A MEMBER: What is the time to commence putting on your wrappings?

MR. YAW: About June 1, and it should be examined every week or ten days until September; then you can leave it on until winter. The last brood stays in the larva stage until spring.

A MEMBER: By the 1st of June the first crop of codling-moths would have escaped and deposited eggs in the apple.

MR. YAW: The first begins to hatch about the 1st of June. The crop that winters over you do not want to let escape at all. You and all these fruit-growers should adopt this plan; for where I destroy this insect, my neighbor across the road will not. I would like a law passed in this country to compel them to do it.

A MEMBER: I think that cloth ought to be put on by the 1st of May anyway.

MR. YAW: No, it is no use to put it on that soon.

A MEMBER: By that time the moth are all gone.

Mr. YAW: I am not catching moth, I am catching larve. The moth I do not catch at all. I tried all summer to catch codling-moth with lights, and I thought I was catching them, but I found I was wrong, for I did not know what a codling-moth was. I was doing wholesale trapping, but not getting a codling-moth.

A MEMBER: This is practiced in western Colorado very extensively. The bands are handled by children, and a lively child will get over five acres a day.

MR. HOLSINGER: I have used paper, as the most economical, and with the best results. Crease the paper up so as to make several folds, and the larvæ will pass between the folds inside of the paper, and you can catch them as well with paper as with cloth. I would like to add that it does not make any difference what you use, as long as you use something.

Mr. Thompson: To what extent can you see the benefit of these treatments in your orchard as compared with your neighbor across the way?

Mr. YAW: Fifty per cent.

Mr. DIXON: If you have bands for canker-worms, you should have something sticky, in order to catch the worm [mother moth].

DISCUSSION ON FERTILIZERS.

MR. BAILEY: Mr. Hale will now talk to us about fertilizers.

MR. HALE: I do not know that I am competent to open a discussion of this kind, for here in Kansas, where your land is so fertile that it grows everything without fertilizer, you do not need it. In New England, where my whole life has been spent in fruit-culture, we hear a great deal about worn-out soil, but there is not much truth in it, because much of our land is as fertile as yours is here. We have come to understand, as probably many of you do, that fruit production is really a manufacturing process. We are manufacturing fruit instead of manufacturing plows, etc. As to what we need to develop our fruits, we have to ask the trees. We prune the trees and feed them with phosphoric acid and nitrogen, and in later years, as we discover the need of plant-food to stimulate the tree growth, the foliage growth, or the quality of the fruit, we give it to them. We find we get better results with chemical fertilizers than we do with stable manures, in a general way. We get phosphoric acid in the form we can buy it the most cheaply and satisfactorily. If we can get hardwood ashes, we would rather get our potash in that form.

A MEMBER: What is a bushel of wood ashes worth?

MR. HALE: Good hardwood ashes are worth twenty-five or thirty cents a bushel. Many of our better cultivators get all the nitrogen they want from late leguminous crops. Last year a great many of our people, to stimulate their orchards, bought nitrate of potash. They pay seventy or eighty dollars a ton. Now, we find that it is not to our advantage to buy mixed fertilizers, for the fertilizer fellows have a peculiar method of arithmetic that does not fit my pocketbook. We had a contract made through the secretary of our state grange, some two or three years ago, whereby we could buy our chemicals even in small quantities. We could buy a few hundred pounds of potash or bone or nitrate of soda, as wanted. We apply them to our fields as we find our fields need them. For instance, the strawberry field: If the land has had a good coat of cow-peas on it, it brings in a good lot of organic matter you need, and it leaves the land in a splendid condition of culture and moisture. I apply, myself, from 1200 to 1500 pounds of finely ground bone per acre, and from 400 to 600 pounds of muriate of potash per acre. I use an excessive amount of potash, because we get high coloring and firmer, sweeter strawberries where we use potash. In the granite hills of New Hampshire and portions of Vermont, on many of our soils, we feed potash liberally to our apples and peaches, for color and quality. We have come to know that beauty first, to catch the eye and open the pocketbook, and quality to hold it open and skin it. I would want to know something about the land before I would lay down the law as to how it should be fed.

Mr. Balley: Will you please tell the questioner how he should know what to use?

Mr. HALE: Can I go to your home and tell what your wife wants? No, I cannot do it; neither can I tell what your land wants without I first look into it and find out.

A MEMBER: What does a peach orchard need that sheds its leaves about the middle of the season? MR. HALE: I should say that first it needed spraying.

A MEMBER: The orchard has been sprayed; the leaves turned yellow.

MR. HALE: I should say, then, plenty of cultivation and nitrogen.

A MEMBER: It has had cultivation, and it is a sandy loam.

MR. HALE: I have found that since we have begun spraying for the scale we are getting better foliage.

MR. WHITEKER: What time do you spray for leaf curl, and with what?

MR. HALE: We spray in the spring with rather strong Bordeaux mixture, and also a week or two earlier with copper sulfate or with lime and sulfur spray, and in that way we are cleaning up the scale, and at the same time we are stopping leaf curl just as effectually as with the Bordeaux mixture.

Mr. Lux: We have had some trouble here with dropping of leaves. About three years ago I found the leaves on the trees begin to turn yellow and then drop off. That extended through part of the peach orchard the first year, and last two years my whole erchard was affected with the leaves getting yellow and dropping off completely. I have Elbertas in town where I live out of the same bunch, that keep very green and hold their foliage until very late; so I think it is some disease. I find the trees do not make as good growth as they did before. We did not have much fruit this year—a few Elbertas and a few Crosbys. Much of our fruit rotted on the trees. On the high grounds we had about twenty bushels of nice Elbertas on 100 trees.

MR. HALE: I suppose you have some scientists at your Agricultural College who make a study of plant diseases, and you should inquire of them.

MR. LUX: I have been inquiring whether it is the yellows they have back East.

MR. HALE: No; yellows does not act like that at all.

MR. BAILEY: Will you tell us how you make your lime sulfate?

MR. HALE: Geing very briefly into the lime-sulfur spray: Any cooking vessel that you can put fire under or steam into will answer. I have some pipe running down from the top of a barrel to the bottom, and at the bottom are twenty-eight holes, one-thirty-second of an inch in diameter. I fill that barrel one-third full of water, and turn on the steam. When this water is boiling we dump in twenty pounds of lime, and immediately, while that lime is slaking, we dump in fifteen pounds of sulfur, and the excessive heat melts down that sulfur almost immediately. We keep the steam right on boiling, and in twenty minutes we have it thoroughly melted. We let it boil a little longer, and a little later we turn in the water and fill the barrel, and keep on until it all boils. So far as scales and fungus are concerned, the lime and sulfur kill that. Salt makes it stick longer on the trees, and it makes it also harder to spray. If we leave a barrel over night, sometimes it will crystallize. We use the salt as follows: Ten pounds of salt, fifteen pounds of sulfur, and twenty pounds of the best lime we can get.

Mr. BAILEY: Do you ever use salt as a fertilizer around your fruittrees?

MR. HALE: What for? Is there any plant-food in salt?

Mr. BAILEY: Do you use lime in your orchard?

Mr. HALE: Sometimes; where we use much muriate of potash we sometimes use lime.

A MEMBER: I understood you to say that you applied nitrate of soda one week to peach trees, and same next week.

MR. HALE: Yes; do you feed your pigs every week? If you put on a large amount and have excessive rains you might lose part of it; so we put a little on the ground, and later we put on some more and spread it out.

A MEMBER: Would it not be cheaper to go West where they do not need so much fertilizer?

MR. HALE: No, because we are down East where the markets are the best in the world, and we do not have to pay excessive railroad rates.

A MEMBER: I would like to ask what is the best method of applying wood ashes.

MR. HALE: Broadcast them. Broadcast all of your fertilizer, all over the ground. Putting a little fertilizer around a tree is like trying to stand in a plate of soup when you want that soup for dinner and try to absorb it through your feet.

MR. BAILEY: How much ashes do you put to the tree?

MR. HALE: It depends upon the land. I do not suppose that 1000 bushels of ashes would do any harm to an acre of well-developed apple trees. Do not understand that I said to use 1000 bushels to the acre, but I say it will do no harm. We are satisfied with 100 bushels to the acre.

MR. HOLSINGER: We fail to find a single result from the use of blood, bone, or anything of that kind. We do not find our soils need fertilizers at all. I have a little pear orchard, and all the ashes from the house go around the pear trees. I do not see any results. These pears stand there just the same, and they blight the same. I do not see any difference in the soil. If you would give me all the ashes in the state of Kansas, I would not go to the trouble of spreading them over my soil.

MR. WILLIAMS: For Mr. Hale's benefit, and to let him know we are not all like Brother Holsinger, I have the poorest ground in the United States, and it is absolutely necessary to have fertilizer. I haul out 500 or 600 loads of manure every year, and then I buy Armour's commercial fertilizer, and last year it made over 100 bushels difference where I used the fertilizer.

PRESIDENT WELLHOUSE: We have had an interesting time with Mr. Hale, and he came a long way to see and talk to us, and, as one good turn deserves another, we want to get all out of him we can. If there is anything else you want from him now, pitch it at him.

A MEMBER: What does your bone-meal cost?

MR. HALE: Twenty-two dollars.

A MEMBER: Do you use the same fertilizer or formula for apples that you do for your peaches?

MR. HALE: No, not entirely. It depends entirely upon the land.

A MEMBER: You simply feed for stimulation of plant life?

Mr. HALE: No; we feed for building up a solid, vigorous, healthy tree, and then we feed it for fruit of as fine color, fine quality and fine texture as we know how.

A MEMBER: How far apart do you plant your trees?

MR. HALE: Apples forty feet.

A MEMBER: Now, your trees are forty feet apart, and you broadcast all over this land. Do you mean to say that your trees root all over this forty feet?

MR. HALE: Certainly.

A MEMBER: Don't you believe it would be quicker to reach the tree if it was spread around underneath the tree?

Mr. HALE: Yes; but another thing to remember is that the more you spread the fertilizer the more you spread the roots. If you spread only around the tree your roots will naturally concentrate around the tree and not spread out.

A MEMBER: The natural growth of the roots of a tree, so far as my experience is concerned, is in proportion to the spread of the top.

MR. HALE: Not so much in the spread of the top as in the length of the top. Well, gentlemen, you may follow your own way out here. If your trees respond better by digging around them, that is the way to do it. I find the better I cultivate my land and the more I fertilize my trees, the better results I obtain. As a general proposition, broadcast your fertilizer.

A MEMBER: I would ask you with reference to your phosphate rock; whether it is a fact that you can get your phosporus out of those phosphate rocks cheaper than you can get it out of bone-meal?

Mr. HALE: I would rather have dollar for dollar's worth of bone, and when it comes to the question of transportation it adds to the cost of the phosphate.

A MEMBER: There is quite a movement by the press in favor of ground phosphate rock.

MR. HALE: They had better let that alone.

Mr. YAW: Will you please explain to us the difference between flowers of sulfur and sulfur flour?

Mr. HALE: Sulfur flour, as I understand it, is simply ground brimstone, and flowers of sulfur is made from burning sulfur.

MR. BAILEY: Do you ever make fertilizer by mixing bone with wood ashes, moistening the mixture?

MR. HALE: No: I put them in the land and let the land do the job.

A MEMBER: We have had orchards heavy with bloom and no fruit. How should we fertilize for that?

MR. HALE: I could not tell you anything about that. I know the well-cared for, well-cultivated tree is the one that bears best for me. I believe in the very best of care in every particular. If you cannot afford to care for a horse, a cow, a pig or a tree to the very best of its needs, you had better let it go.

A MEMBER: Do you find anything in the breeding of a tree?

MR. HALE: I believe, of course, in propagating from the very best bearing trees. I believe if we will select our buds from the very best bearing trees and continually breed from that stock we can breed up. Nursery-

men will say it is a slow job. It is harder to get good buds from a bearing tree. The buyer and not the nurseryman is to blame for it.

MR. LUX: I am glad Mr. Hale made this remark. I think it is the main thing in our horticulture meetings. It has been kept out of our meetings lately because we are afraid of hurting our nurserymen.

PRESIDENT WELLHOUSE: I think the morning has been well spent. We have not kept to the regular order of business, but I do not think we could have used the morning to any better advantage than we have done. Now, it is nearly eleven o'clock, and we will proceed with the regular business. The morning's exercises are devoted to the reports of officers. I see I am put down as the first officer to report.

PRESIDENT'S REPORT.

FRED. WELLHOUSE.

I have to report the same as I have reported for the last ten years. Our Society is continually growing; it is in a prosperous, healthy condition; we are in as good shape as we could desire, and the fruit-growers' interests of this state are advancing. We are fast learning what to plant, and this has been the most important question the fruit-growers of Kansas have had to contend with. Outside of that I do not know that I need make any report. Our Society is in a flourishing condition; the state legislature has given us ample room, heated and lighted. It is a great satisfaction to be able to report that we have as good a horticultural society as there is in the Union.

VICE-PRESIDENT'S REPORT.

J. W. Robison.

We see the condition of horticulture in Kansas by that display of fruit. There is the display, largely, that was made at the World's Fair. To be sure we had to compete with some societies that had ten times as much money. Money frequently makes a horticulture display; particularly when they have gall enough to ransack all the neighboring states to fix up their display; and when they could not get their full quota of fruit they made it of clay. There were immense apples there from our state.

It is interesting to sit here and listen to this fertilizing question—about how much potash and phosphorus and all these things cost—when we have beds of it here selling at a discount over the farming land; where land with considerable phosphorus in it is selling for four or five dollars an acre. I do know that a few years ago, in breaking up a tract of land that had some of those plats on it, the breaker said: "I did want to send to town for some saleratus, but I guess it is not necessary, for I found a saleratus bed out there, and I guess I can get enough to make biscuits." And he did, and they were very fair biscuits, too. Young trees the first two or three years do not need fertilizing twenty feet from the trunk. In six or eight years I think the roots will reach there.

In this country we must learn something of varieties; we must learn something of conditions; and that was a grand school down at the World's

Fair to learn from. We had grand teachers there. We had lessons from all over the United States; from the East and West; from England and Germany, and across the ocean, where we find the head of our wholesale markets. They came to St. Leuis and made close examination, asked questions about prices, and what they could be furnished for, and got a great deal of information; got even the names of dealers. Frequently I was called upon, within the three weeks I was there, for the names of growers with whom they desired to correspond. So, we are getting something of a reputation.

Our markets are one of the main things, especially our apple market. When in France a few years ago I asked what was one of the principal imports into that market, and was told it was dried apples. I asked what the use was, and my informant said: "I have 15,000 bushels of apples in the government warehouse." I found it was the culls and anything that had apple juice in it. They make champagne of them. On the dock were hundreds of cords of logwood, to give it the proper color. Judge Wellhouse has told you here he found it more profitable to sell his cull apples than to work them up himself. He did not have that kind of a market to sell his apples in. Herticulture in Kansas is all right. In Kansas City, where there is no express charge, it must be more profitable than it is here with the judge and myself, where they take a considerable share of it before it gets to market.

We want to be up with the methods, up with the times. Now, it looks a little difficult to improve the Elberta and Champion peaches by selecting the very best trees and good buds, but it is practiced everywhere, and in everything else. Some of the ether states, and eur own state, are doing a good work in that line. The same natural law prevails, and if it is beneficial in ene line, surely it is in another. The corn-breeders of Illinois have produced fifteen per cent. more pretein in seven years by selecting their seed to plant. Along that very same line we can preduce alfalfa crops that will raise half a ton more to the acre by selecting the seed. In time to come we may expect to raise apples in Kansas that will rival those made of wax down at the great fair. We have produced these that are so far above the natural apples that they are incomparable.

New, the improvement is going en here, and it will take such men as you, such men as the professors in our colleges, and other like colleges. There never has been a time in the history of the world that plant improvement by breeding was in such progress as it is at the present time. The study of fertilizers is just the same way. Now we hope you will each speak in your line—one man on wrapping, another on spraying, another on cultivation; trying to get out all there is in it; and, if we work mind to mind, we know we will produce the greatest results for ourselves and for our state.

TREASURER'S REPORT.

Cash on hand last meeting	\$ 33	08
Deposit, First State Bank, Argentine	459	00
Received, membership fees		
Received, interest	18	00
Total	\$ 539	08
Paid out on warrants		
Balance	\$504	08
Deposit, First State Bank		
Balance on hand	\$29	08

SECRETARY'S ANNUAL REPORT FOR 1904. WILLIAM H. BARNER.

The year opened with an exceedingly fine promise. The fruit-trees and berry bushes went into the previous winter in fine, vigorous form. Fruitbuds showed in innumerable numbers in the spring, and the quantity and quality of the bloom was probably never exceeded in the state. Cherries set fairly well, plums rather poorly; strawberries fertilized well; blackberries could scarcely have bloomed and set better. But peaches were caught by late frosts and apple and peach buds opened amid little sunshine; and during the blooming-time of the apple, over a large portion of the state, continuous cold rain prevented proper fertilization; and peaches in a portion and apples a greater portion of the state were comparatively a failure. Kansas covers such an extent of latitude that we almost always have success in some portion. This year in the south-central portion several counties were blessed with a wonderful crop of excellent fruit, practically free from insects or scab. As the successful cultivation of fruit extends toward our western border, it should bring joy to the heart of every citizen of the state, as with horticulture goes the higher civilization. Peaches of fine quality grew in limited quantities in many parts of the state; and prices and demand never were better. We are fortunate in having with us the largest peach-grower in the world, of whose experience, judgment and success we heard last night, surely to our profit. This afternoon we will hold a conference on peach growing, when all questions will be answered.

In May the Society held its twentieth semiannual meeting, at Dodge City. This meeting was largely devoted to forestry and irrigation, and was delightful, entertaining, educational, and very successful. Many excellent papers were read. The Commercial Club of Dodge City did much for our benefit. They furnished the opera-house and music; they also furnished carriages and drivers and took the Society out to the State Forestry Station. The afternoon was pleasant, the ride a delight, but the station was a great disappointment; no one could see what the state is getting for her money. Perhaps our ideas were too ideal; but, on the whole, the Forestry Station did not have, with the great expenditure of state funds, as much "art forestry" as many private Kansas farms. The following resolution was unanimously passed:

Resolved, That a committee of five be appointed by the president to

recommend plans for aiding the work of the Bureau of Forestry in Kansas and increasing the efficiency of the state forestry work; the said committee to report at the December meeting.

The following committee was appointed, of which Geo. W. Tincher is chairman: E. E. Yaggy, R. S. Kellogg, Dr. G. Bohrer, and Albert Dickens.

A bill was passed by the last legislature allowing this department to take, through the township and city assessors, certain statistics regarding horticulture in the state. Sixteen hundred such rolls, with questions covering all, or nearly all, lines of horticulture were sent out to the county clerks, and by them delivered to the assessors. Three of the well-populated counties sent back no returns. In two of these counties, viz., Brown and Shawnee, the assessors refused to earry our rolls; from the third and from six of the scarcely populated counties we can get no satisfaction. For these delinquent counties we applied to the Board of Agriculture for figures as far as available. In several counties, one, two and even three or more township assessors were just as contrary or disinterested, and left their rolls blank. So that while the returns are very valuable and can be compiled into much valuable information, yet they are incomplete and imperfect. This, we are confident, can and will be remedied next year.

PRUIT AND FRUIT-TREE STATISTICS OF THE STATE.

	In bearing.	Not in bearing.	Total.
Apple trees	6,109,993	1,626,720	7,7 36,71 8
Pear trees	208,795	146,970	355, 765
Peach trees	8,149,508	1,497,080	5,246,588
Plum trees	529,520	190,059	719,579
Cherry trees	654,654	206,033	860,687
Quince trees	5,957	5,662	11,619
Apricot trees	94,776	44,226	139,002
Grand totals	11,353,203	8,716,750	15,069,993

VINEYARDS.

Barring the counties of Brown, Crawford, Clark, Decatur, Ellis, Norton, Rush, and Shawnee, from which no statistics were returned, we find: 2868 apple orchards of from 300 to 40,000 trees, averaging for the 2868 orchards over 775 trees each. Of these, 402 run from 1000 to 40,000 trees, averaging 2850 trees each, or over forty-five acres.

The following thirty-three counties sold over 10,000 bushels of apples in 1903: Sedgwick county, 156,621; Cowley, 147,569; Sumner, 77,474; Butler, 52,413; Harper, 38,298; Cherokee, 30,567; Reno, 27,071; Doniphan, 19,546; Greenwood, 19,269; Nemaha, 18,778; Pottawatomie, 18,685; Kingman, 18,-209; Neosho, 17,260; Leavenworth, 17,228; Coffey, 16,174; Bourbon, 15,035; Johnson, 14,812; Chautauqua, 14,778; Labette, 14,232; Franklin, 14,266; Elk, 13,663; Wyandotte, 13,475; Linn, 18,411; Saline, 12,686; Ottawa, 12,583; Riley, 12,686; Marshall, 12,496; Lyon, 11,625; Montgomery, 11,564; Anderson, 11,036; Wilson, 10,696; Harvey, 10,600; Jefferson, 10,093.

You will want to know the location of the largest orchards in the state. The following forty-two raised above 3500 bushels each: B. F. Coombs & Bro., Parker, 40,000; J. E. Stigers, Tonganoxie, 40,000; Fred. Wellhouse, Wakarusa, 40,000; L. W. Yaggy, Hutchinson, 40,000; F. Wellhouse & Son, Tonganoxie, 25,000; J. E. Boyd, Lane, 20,000; H. M. Gamble, Hutchinson, 18,000; L. F. Miller, Perry, 15,000; J. Watkinson, Perry, 15,000; W. W.

Chadwick, Irving, 15,000; Chris. Ehrhart, Ackerland, 12,000; F. Goble, Piper, 11,000; Henry Gupe, Winfield, 10,300; J. J. Johnson, El Dorado, 9000; Wm. Booth, Winchester, 8000; Jas. McNicol, Lost Springs, 7500; S. H. Hoover, Wichita, 7080; M. F. Rees, Gardner, 7000; James Sharp, Parkerville, 7000; F. A. Groves, Hutchinson, 6000; James Dukelow, Hutchinson, 6000; E. H. Lyon, Udall, 6000: A. Oberndorf, Centralia, 5000; Eliza Rayl, Hutchinson, 5000; A. E. Smith, Little River, 5000; J. H. Magill, Roper, 5000: Edwin Snyder, Oskaloosa, 5000; Wm. Freimerth, Tonganoxie, 5000; J. Keller, Arkansas City, 4000; Al. Dimick, Reese, 4000; J. F. Haynes, Grantville, 4000; J. G. Hunter, Buck Creek, 4000; Ida Ferris, Osage City, 4000; James Dukelow, Hutchinson, 4000; F. Schermerhorn, Ogden, 4000; Wm. Mitchem, Argentine, 4000; John Vigus, Holmes, 3600; J. C. Bedwell, Gardner, 3500; J. G. Siter, Baileyville, 3500; H. M. Gamble, Hutchinson, 3500; J. S. Perkins, Turner, 3500; Alex. McCutcheon, Marquette, 3500.

BERRY STATISTICS.

Acres in state, barring eight counties named above:

	Total acres.	Total product, 24-qt crates.
Strawberries	3,499	82,359
Raspberries	1,746	89,455
Blackberries	3,531	70,271
Gooseberries	319	2,938
Totals	9,095	195,023

Acreage of strawberries.—The following sixteen counties had over 50 acres: Butler, 430 acres, sold 929 crates; Cherokee, 332 acres, sold 6936 crates; Doniphan, 277 acres, sold 10,383 crates; Wyandotte, 243 acres; Mc-Pherson, 215 acres; Jefferson, 215 acres, sold 1001 crates; Anderson, 196 acres, sold 293 crates; Osborne, 128 acres; Leavenworth, 111 acres, sold 5788 crates; Neosho, 92 acres, sold 8302 crates; Shawnee, 88 acres; Jackson, 72 acres; Johnson, 65 acres, sold 2838 crates; Marion, 65 acres; Lyon, 57 acres, sold 1700 crates.

Acreage of blackberries—2531 in state; twenty-four counties with over 50 acres each, as follows: Doniphan, 356 acres; Harper, 306; Wyandotte, 231; Butler, 189; Linn, 166; Neosho, 139; Cherokee, 111; Cowley, 110; Franklin, 106; Reno, 105; Smith, 105; Douglas, 102; Montgomery, 91; Johnson, 88; Shawnee, 88; Anderson, 87; Elk, 86; Woodson, 86; Labette, 80; Jefferson, 69; Leavenworth, 60; Lyon, 59; Sedgwick, 52; Miami, 51.

Early in the spring the glass jars of fruit now before you, and the artificial fruits in case outside, went to the World's Fair. They returned twelve days ago. Mr. Schell, the superintendent of the Kansas horticulture exhibit, will tell you in his report all about the summer exhibit and the premiums taken.

On October 26, pursuant to a call made from Michigan, the executive officers of the different state horticultural societies met in the horticulture palace at St. Louis to perfect a business organization, or cabinet. This organization listened to a few papers, as follows: "Methods of Securing and Maintaining Members"; "The State Society's Place in State and National Expositions"; "National Unity of Action against Insect and Fungous Pests"; "Closer Relations with Experiment Stations in Work of Mutual

Interest"; "Securing a Higher Place in the Councils of the State and Nation"; "Possibilities of a National Federation of Horticultural Societies."

You will notice that the questions are all along business lines, and each one important. Your secretary read one of the papers, was temporary secretary, and is now the chairman of the committee on constitution and bylaws. One important question came up as to how so to regulate the time of the annual meetings that talent of national reputation shall be consecutively used by several states; also, se that leading horticulturists or any one who desires may attend several state meetings during each winter. As it is now, several states hold their annual meetings at the same date. Last week I attended the forty-first annual of the Missouri State Horticultural Society, at Neosho. It was a superb meeting, successful in every way. Since our last meeting in this reem we secured a new and much-needed carpet. This has greatly improved the room, but we hope the incoming legislature will have the walls cleaned and newly freecoed and the rooms preperly furnished. When this is done the home of this Society will be second to none. The membership of the Society does not increase as it should; there are thousands of enthusiastic herticulturists in this state who welcome all the information this Society can give, yet will not come near it. None are so free-hearted and liberal as our members; they come here and give away freely knowledge that has cost strength of mind and body, besides money and time. Luther Burbank is doing and has done for the world a work that cannot be duplicated in value by any man in any other line. The true, working horticulturist is an inventor, a manufacturer, a physician, a preacher, and a patriot, and all his work tends to make the world better. Let us, then, persuade our neighbor, as his best friend and adviser, to join himself for life to this Society as a duty he owes to himself, his family, and his country. This Society should have on its roll a life membership of 1000. At Los Angeles there is a fruit-growers' association of over 1000 individuals who pay dues of one dollar per month, making \$12,000 per year for pushing their locality. Kansans leve their state as well as Californians love theirs, but they do not realize the importance of organized effort. But this Society is steadily gaining. The total life membership since organization has been 182-of them 62 were received before July 1, 1895, and 120 since July 1, 1895. Of the former, death has called for 27, 4 have withdrawn, 10 are missing, and only 20 are in communication with us. Of the 120 joining since July 1, 1895, two only have died, viz., P. H. Bowen, of Cherryvale, and R. H. Bishop, of Salina. All the others are in active, sympathetic communication with the Society. Why not add 100 more annually? No horticulturist can better invest five dollars.

Coming to the work again, I would say it has been the hardest year of ten; the regular work of the office has grown beyond precedent, and added to it were the statistics spoken of, which took every spare moment, and are not yet fully compiled for publication. Volume XXVII of reports was duly issued, but not without great tribulation. The most erdinary common sense must readily understand that such a report would be a hundred per cent. more valuable if issued annually. When orchards, gardens and berry-fields become biennial, when insects come only biennially, when the demand for choice fruits becomes only a biennial matter, then, and then only, should the reports be published biennially. If we had 1000 life members, and an annual report, we could place Kansas in the front rank as a horticultural paradise.

PEACH CULTURE. By J. H. Halm.

It used to be believed that there were just a few favored peach regions. The eastern shores of Lake Michigan, the Delaware and Maryland peninsula, a little of Illinois, a little of Missouri and a little of New Jersey were believed by the horticulturists of that day to be the only places where peaches could be grown with any degree of success. Now it has developed through the work of this and other horticultural societies of the states in this Union, and the demand for fine fruits has stimulated the horticulturists to examine the land here and there and everywhere, until we find that peaches can be grown with success in almost every corner of almost every state in our Union.

The development of the railroad lines of the country, the consolidation of a lot of smaller roads into great through lines, has helped the fruit interests tremendously. The great peach orchards of America to-day would be of little importance if it had not been for the consolidation of the railroad lines, and the quick through lines of traffic by the railroads and express companies.

There is almost too much of peach planting in this country. Last year peach orchards in Georgia had eighteen millions of trees; two or three millions will be planted this winter; so by the opening of February twenty millions of trees will be growing in Georgia. There are peach trees enough in the United States south of Mason and Dixon's line to furnish, if they come into reasonable bearing, and only give half as much per tree as they are able to give under reasonable culture, a thousand car-loads a day for the two months of midsummer. It is simply overplanted. The San Jose scale and other blessed afflictions will reduce them somewhat.

Lots of people have planted peach trees in this country in the last six or eight years who do not love the peach tree. They do not love the peach—they love the dollar that comes out of it. The man who would just as soon run a saloon as an orchard because he can make the most money out of it will not make much of a success of it. If we love trees and plants, and love to care for them, and enjoy working with them whether they reward us or not, the chances are that they will reward us liberally. In other words, only the man who loves the peach tree and enjoys working with it, through success or failure, is likely to be successful with it. I do not think all of these great orchards that have been planted are actually going to turn into the market these thousand or more car-loads a day they would be capable of if they were properly cared for.

The best opportunity, it seems to me, for you here, or for people anywhere, in a moderate way, is to supply the markets in your state, where there is least competition, with a higher quality of fruit than is now supplied. There is a demand for high-grade fruit. The men who are to make orcharding a permanent business in the future are the men who will cater to the finer tastes of the people.

In 1890 I had charge of the horticultural census of the United States. Being interested in fruit-culture, and interested in getting all the information I could, both for myself and the government, I persuaded the head of the then census bureau and secretary of the interior to let me go way back

into the census of our government. I made one special investigation of the flower-culture interests of this country. Prior to 1800 there were about five commercial flower establishments in the United States. From 1860 to 1870 they increased to perhaps 200 more; from 1870 to 1880, perhaps 400 to 500 more: so that up to about 1880 to 1890 they had increased to about 5000. We asked a whole lot of questions about these flowers—about what they were doing with them; and, to boil it all down, we found that in 1890 they sold thirteen millions of dollars' worth of cut flowers. We found that at this time all classes of people were buying flowers. They were buying to adorn their persons and their homes, every day in the year. I found the working man's wife, when she went to market with a couple of dollars, would put \$1.75 into grocery products and the other 25 cents into flowers. We found another thing I got interested in; we found that certain communities were buying a great many more flowers than other communities. We found that the wealth of the community had very little to do with the purchase of flowers. We found every time that as the people were becoming more cultivated, more refined, and more soulful, they were buying more flowers.

What applies to flowers applies as truly, or more truly, to fruits. People are dressing their tables with beautiful fruits; and do you suppose that these people would buy fruit of an inferior quality? No; they want the most beautiful fruits we can grow, and they want the most delicious and wholesome. That is the opportunity of the American fruit-grower of to-day, and of the future. And so I say to you, in growing peaches here in Kansas for your home markets or for the markets you can reach, grow peaches of the highest beauty and of the highest quality. Let them be grown under the very best methods of culture and pruning, and then let them be packed in the very best packages you can procure on earth, and do not let an inferior peach go into a single package you send out; if there is a poor one put in, let it go on top; and then "stick" them all you can.

The question of fruit transportation, which was up here last night, is important. We find it so in New England, and we find it particularly so in the South. The question of refrigerator-cars we find an important one. If you are to ship fruit any considerable distance, and it applies to all fruits as well as to peaches, the time is coming when either the railway company, or the car line that furnishes the car, or the grower himself, must plan to cool the fruit. If it is properly cooled when put into the refrigerator-car it will go all right.

As to what soils to plant peaches on, that is a local question; always a question best answered by asking the soil where the trees will grow; but as a general preposition peach trees thrive best on rolling lands. They are very particular about good, fresh air, just as I am; and I will give any fellow a dollar who will kick out one of those windows right now. Peaches need fresh air more than we do, perhaps. Rolling land, other things being equal, is the most desirable. Land that is well drained, land that is not too rich in nitrogenous matter, so as not to make too rapid a tree growth, is most desirable for a tree. As a general proposition, they should be planted from sixteen to twenty feet apart each way. I have planted orchards as close as eleven feet apart each way, and by severe pruning made more money out of them than those planted farther apart. In this country, from sixteen to twenty feet apart I think would be best; and on the whole I like a good, big vigorous one-year-old tree, and I cut off almost all of the top and almost

all of the roots when I plant it. If I can get a few inches of root to put under ground, and a few inches of top to put above the ground I think I have a pretty good tree. In hard ground I dig a good, big hole and break it up thoroughly, and if necessary I use a little fertilizer. I always like to plant in the spring, although you can plant in the fall and cut the tree down as close as you want to. On the whole, I think early spring planting most desirable. Give your trees thorough cultivation. If you must grow some crops between trees, do not grow corn. Don't grow grain. Cabbage or potatoes may be permissible, if you do not get within six feet of the peach tree. Give them good, thorough, everlasting culture the first six months of the season.

A MEMBER: What is your objection to corn?

MR. HALE: It shades the ground and shuts out the air. The first year you may let your trees throw up from two to six branches, as they will, or you may thin out as you please. I let my trees start out as close to the ground as they will. In the middle of the season I usually sow a cover crop that will cover the ground by the latter part of July or early in August.

A MEMBER: What is your best cover crop?

MR. HALE: Crimson clover with us in the East, because it dies out in the winter and is not in the way of cultivation in the spring. The following spring I formerly cut my trees back very closely. I found that made a little too dense a head down near the ground; so of late years I have cut the growth down to within two or three feet of the ground; and keep up the summer cultivation as before, broadcasting the fertilizer, or scattering it for eight or ten feet around the tree. The second year's pruning cut out crowding branches, not shearing up the lower branches, and then we cut in the new year's growth just about one-half, so that the second year, at heading, we have the tree down to about four feet.

A MEMBER: Suppose you had a tree that grew ten feet. What would you do with it?

MR. HALE: I would cut it back more than half. When the rapid growth of the summer has about ceased I go among my peach trees and thin out the heads quite freely, and shorten in the main branches. That is a terrible shock to the trees but that shock develops a wonderful number of fruitbuds. I think if there is any one point I may give you here to-day, that may be of more value than any other, it is summer pruning. Shorten in the more vigorous growth at about the end of the growing season. The following spring we prune to form the tree. In its later years there is less need of pruning, because the tree is less vigorous, but each year cut out whatever ingrowing branches need it. Of late years I have been pruning my peach trees. I have now between 300,000 and 400,000; I do not know exactly, but I have over 300,000 peach trees. With the exception of one or two old orchards, we can gather all the fruit while standing on the ground. It reduces the cost of harvesting enormously. It reduces the cost in a great many things. It is easier to prune and thin the fruit. I formerly thinned my peaches so that they were within about three inches of each other; now I thin until they are about six inches. As a general proposition, thin your peaches out to about six inches apart, whenever they have attained the size of three-fourths of an inch. We aim to gather any inferior specimens there

may be, and all those that are affected with curculio, and put them in baskets and cremate them.

These are the particular points of growing up to the bearing age. The feeding is, of course, a question of soil conditions; a question of what plantfeed may be in the soil. We use exclusively of potash, because it gives high color to our peaches, and color means money; and, usually, high color means sugar.

. Now, as to the harvesting of the fruit, our plan is to pick them when they come to full maturity of ripeness. We use a large, round, shallow basket with drop handle, a man can carry on his arm. We pick only what peaches are matured to-day. If it is necessary, we go over the tree again te-morrow or the next day, as the case may be. It takes from a week to ten days to take all of the matured fruit from a tree or a block of trees. The apple grower of the future who is growing apples for market will pick his apples as they mature. We take them to the packing-shed and there sort them into various sizes and grades, and pack each grade by itself in the best package we can buy, made in the best way we can make it, and thoroughly nailed. Pack it as full as we can possibly crowd it: give more than we agree to; nail it up, paste on a label, and then charge more than the market price, and do not be ashamed of it, and they will buy. It was said that peaches would not grow in New England, and I planted a few hundred trees from money I had saved up in working out at \$12.50 a month. At first I had only a few hundred, later, 3000, and, later, more, but I cared for the trees along in the manner spoken of here.

While the crop was maturing on the trees I visited a number of towns within 200 miles of my orchard, and I searched out the fruit-seller or retail groceryman, and introduced myself to him, and told him I wanted his exclusive trade. I told him how I had grown them, how I had fed them, thinned them all through, and how I intended to pack them, and the practical answer they all gave me was: "Young man, you look out. We have never seen an American fruit-grower pack fruit that way, and we do not believe you will. We think you mean all right, young man, but we don't think you can get out of the rut everybody else is in." I made up my mind that I could get more money by honest packing than in any other way. A few gave me orders, and a few said: "Ship me a few boxes when you begin to pick, and if all right we will take some." In a day or two after the first shipment almost all increased their orders. Retail dealers in these towns began to write us that they wanted to sell our peaches. We had to write back that Jones & Huckleberry had the exclusive sale of our fruit, and consequently they ordered more, and we increased the price; and then they ordered more, and we increased the price. The result was that we sold the first crop of peaches, which only amounted to some 5000 bushels, for more money than I had ever seen before. I remember when I wrote a check for \$2100 to pay for the mortgage I felt it was the biggest check anybody ever wrote on earth. I did find that in the sorting-shed when the men came to an extra big peach, or an extra beautiful peach, they would lay it aside to put on top. I would say to put it in anywhere; do not put it on top-I found that day after day those silly men would keep putting those peaches aside to put on top; so that we had to get girls to pack, because they are honest. Trust the inspection of your fruit to a woman every time. If you

are going to make money in your peach growing you have got to pack honestly and well from top to bottom.

The question of climatic conditions enters into the question of peach culture more, perhaps, than in the growth of any other fruit. They are so tender in wood, tender in fruit-buds, that we have picked particular regions that are most free from frosts in winter and spring. We have three types of peaches in this country: The South China type, which will grow in the South; the old Persian strain; and the newer type of North China peaches, which are more hardy in bud. The Hale's Early was a good peach on account of its hardiness in bud. It took our scientific men fifty years to find out why they were so hardy. It was because they were of the North China type. We have had hardy types of peaches descended from them. We have the Elberta, which is probably a cross with one of the Persians; it is evidently half North China and half Persian.

COLONEL ROBISON: I would like to ask you for a half-dozen varieties that you think would be hardy here.

Mr. HALE: Crosby, White Flake, Waddell, Carman, Hill's Chili, Belle of Georgia, and Greensboro.

A MEMBER: How many peaches can one man handle the way you have instructed?

MR. HALE: A Connecticut Yankee cannot do as much as a Georgia negro. I suppose a Kansas man would be about between the two. We have about sixty hands on our place all the time, and at thinning time we put on some extra help. I suppose we thin the crop in Georgia with less than a hundred people.

A MEMBER: What do you grow for clingstones?

MR. HALE: There is no market for clings, or at least such a small market that we cannot afford to grow them.

MR. Lux: Can anything be done to harden the peach bud in any way?

MR. HALE: Keep your trees growing very late in the fall. It is the late-developed, poor, weak bud that stands the frosts the best of all. [Hear! Hear!]

A MEMBER: Do we understand you that the yellow peach is going out of date as a seller, and the white peach with the red cheek is coming in?

Mr. HALE: I say the white peach is coming into great favor, but the mass of the people to-day buy yellow peaches—buy Elbertas and similar peaches.

A MEMBER: Do you advise large commercial orchardists to plant white peaches in preference to yellow?

MR. HALE: I am planting more white peaches than any other. I ship my Georgia peaches in six-basket carriers. I paste a label on the end of each basket. I print a little circular that illustrates my orchard and our method of handling and put that into the baskets. If it is a poor peach, they dodge it, and never buy any more. If it is good, they come again, and I put up the price.

Afternoon Session.

The report of the committee on credentials was submitted, and, on motion, adopted.

The following officers were then elected: President, Maj. Frank Holsinger, Rosedale; vice-president, W. F. Schell, Wichita, Sedgwick county; treasurer, Walter Wellhouse, Shawnee county; secretary, William H. Barnes, Topeka.

L. A. Goodman, secretary of the Missouri State Horticultural Society, was introduced, and said: "The horticulturists of Kansas are not strangers to me. I am glad to bring to you the greetings of the horticultural society of Missouri. I am glad to be one with you in helping to accomplish this grand and glorious result. The Missouri Horticultural Society has been a power in this work, and the Kansas Horticultural Society as well. We have gone hand in hand in this work. What has been our work has been yours, and what has been your work has been ours. We want to continue on for greater success."

The following trustees were then elected:

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First district, one-year term, E. J. Holman, Leavenworth; second district, two-year term, E. P. Diehl, Olathe; third district, one-year term, F. L. Kenoyer, Independence; fourth district, two-year term, John Cousins, Eskridge; fifth district, one-year term, Wm. Cutter, Junction City; sixth district, two-year term, J. J. Alexander, Norton; seventh district, one-year term, Geo. A. Blair, Mulvame.

These trustees elected Prof. E. A. Popenoe, of Manhattan, as official entomologist for ensuing two years.

A MEMBER: We know how well our president, Mr. Fred. Wellhouse, has served us. We know his many good qualities of mind and heart, and, as a tribute to his excellent services for this association, I move that he be elected an honorary vice-president of this association for life. Motion carried.

On motion of Mr. Booth, Colonel Robison was also elected as an honorary vice-president of this association for life.

CONFERENCE ON PEACHES.

Led by Edwin Snyder, Jefferson county.

MR. SNYDER: I see this business is mapped out in very good shape. There are seventeen different topics to be discussed in this conference on growing peaches. It reminds me of the old Baptist preacher's sermon, when he announced that the sermon would "cover the whole field, from the birth of Adam." This matter has been pretty well discussed—a great deal better discussed than I can do it—by the peach king of the world. I will not occupy very much of your time.

SITE AND SOIL.

The site makes all the difference in the world. It must be of high altitude. In my peach orchard, in 1900, I had a pretty good crop on the high ground. It kept growing less and less, on five per cent. grade, half-way down the slope, and from there on down there were no peaches at all. Any

soil that will raise corn will raise peaches. The varieties I have had the best success with have been Elberta, Crosby, Heath Cling, and the Salway. The Greensboro and the Sneed have been very successful with me. I usually ship in Climax baskets. They are flat baskets that can be stacked up. The package helps to sell the fruit.

Mr. Lux: Will you describe these varieties of peaches?

MR. SNYDER: I have excellent sucess with the Champion. It is one of the best I have. The Salway is a yellow late peach. If the season is just right they are an excellent peach—one of the best canning peaches grown. In raising fruit for market, it does not matter much what is inside of it; if it looks good it is good, and that is all there is of it. I raise the Triumph, but they rot badly. I would say that almost any peach that will do to ship will do for the home market as well. Some say, do not get trees from a Southern climate. I do not think there is anything in that, because the wood in the trees down there is thoroughly ripened, and such trees do firstrate. I planted a good many June buds, and have success with them. It makes a great deal cheaper tree and is easily planted. I would not plant a seedling if a man were to present it to me. I think it is foolish for a man in the fruit business to raise seedlings, without uniformity in ripening, celor, or anything else.

A MEMBER: Suppose your seedlings were from selected varieties, grown in selected places?

MR. SNYDER: The result would be just the same.

A MEMBER: Are seedlings better than none at all?

MR. SNYDER: Yes, better than none at all. I notice that when I have seedlings I have some other varieties that bear at the same season. I do not think they pay and I do not recommend planting seedlings. I have been planting my trees sixteen by twenty feet. I think that about right in this country. Sixteen feet north and south in the row, and twenty feet east and west. I have been planting by running a furrow with a single-shovel plow east and west, and with a lister-plow twenty feet apart north and south, and then run the lister-plow again, and you have opening enough and do not have to dig any. One man places the tree where the furrows cross, and another man shovels the dirt in around the tree. It is just as good as elaborate planting, which occupies so much time. If you trim the tree properly there will be no liability of the wind blowing it down. They will stand as long as any tree. I would not plant a tree more than an inch or so deeper than it stood in the nursery, and the only reason for that is to get a good anchorage in the ground.

Mr. SNYDER: I have cultivated my orchard a good deal with an extension disk-harrow. This is the most expeditious way I know of. I have never practiced thinning on the trees.

S. P. BAILEY: We had some seedling peaches that were in advance of any seedlings I ever saw. There were on my farm some sixty peach trees so old that nobody remembers when they were set out. We had an abundant crop on these old stubs, while on this farm the other growing peaches were killed with frosts. I said I hoped we would get ten dollars from the crop; brother said if any man shook a five-dollar bill at him he would take it; sister said any man who bought them would be cheated. But the persistent

thinning and rain brought the desired result, and I got more from these peaches, which I supposed were entirely worthless, than I did for what I considered our best. We got about seventy bushels of peaches from those old stubs, and I get \$1.25 per bushel for the culls which were left after the main crop was gone. If you plant good seed from good budded fruit you are apt to get good trees that will bear when budded peaches fail.

MR. SNYDER: I believe the man's name who originated the Elberta was Dector Rumpf, of Georgia. He planted some 1200 seedling trees, and of the 1200 he only get one that he considered worth keeping, and that he named Elberta, after his wife.

MR. YAW: When I did not have money to buy budded trees, one of my neighbors gave me let of seedling peach trees which I set out for a windbreak as much as fer anything. They bore fruit when my budded peaches failed. From those seedling peaches that I set out for a windbreak I got a fine lot of peaches, took them to market, and got eighty cents a basket for them readily. My customers would say, "Is that budded fruit?" "Don't they look like it?" "Yes." I have planted the Wonderful, and they are wonderful.

MR. SNYDER: I would advise anybody who is stuck on a seedling peach to take the seedling and bud it.

Mr. ALEXANDER: My experience in planting budded peach seed is that I teck some seed of the finest Crawfords and Crosbys I ever saw and planted them, and I got the littlest and woolliest of peaches. They were absolutely werthless.

MR. SNYDER: Mr. Hale, would you plant any seedlings in your erchard?

MR. HALE: I could not afford to do it. I have 10,000 seedlings in one field to experiment with. They have fruited for two years, and in 10,000 seedlings we do not find one first class. We may save just one out of the 10,000 and the rest will go to kindling wood. I shall be wonderfully elated if we get one valuable peach out of the lot. As to comparing seedlings with the best budded varieties, it is utter nonsense. With the price of peaches at the present time it is utter nonsense to think of raising seedlings for fruit.

Mr. Robison: I do not think we can gain very much from this seedling discussion. When you get down to naked facts they are all seedlings. The budded peach was a seedling that was worth propagating. Out of the millions of peaches that have been grown in North China, Persia, and all over the earth, we have selected a number that are worth cultivating for a peculiar quality. As has been told you here, an intelligent peach grower could not afford to plant them when he had 10,000 to select from; then how can we afford to plant them? What are the merits that gives the seedling any standing? A few varieties of North China reproduce themselves, for some reason or other. We know the Heath Cling peach has, for generations, produced a white cling peach. The Indian Blood peach reproduces itself, with a little less color and a little more fuzz. The farmer never knows when he has a superior seedling peach until the tree is dead. Mr. Bailey, how will you go at it to select seedlings?

MB. BAILEY: I do not know, but I have not had finer peaches in my house

for years than I had from those seedling trees this year. Is not the seedling peach a little more hardy than the budded peach?

COLONEL ROBISON: No sir; they are not.

Mr. Bailey: Why did all of the budded peaches fail and only the seed-ling peaches thrive?

COLONEL ROBISON: You probably selected tender varieties of the budded fruit. In the seedling peach the seed is small and the concentrated drop of juice that makes the seed requires only a small fruit-bud. In the large bud which the budded peach trees usually have the juice is more diluted and weaker. Now, then, in the little worthless, knotty seedling the prussic acid in the inside of the bud is so concentrated that it does not congeal at a low temperature, and is not destroyed. That is the whole thing, and the seedling buds, millions of them, because they are small, do not kill. I think the Crosby will bear when most others will. I have never failed to have a good crop of Snow peaches. It will invariably be the larger peaches, having the larger buds, that kill with frost.

MR. SNYDER: Now something about pruning. One of the most practical plans of thinning peaches is to prune them quite heavily. Cut the limbs off, well back. I have a theory about pruning that they should be kept cut back, but in practice my trees have gotten away from me, until I have to take a step-ladder to pick the fruit. Does it pay to raise peaches? If I could raise them as Mr. Hale does, I would say Yes, but I have not been able to do that. They have not paid me very well, because of the uncertainty of the crop. Having become considerably discouraged, I have just sowed the ground to clover and I have been pasturing mules. It is successful so far, and they have not hurt the trees. If there is a peach crop this year I will take my disk-harrow, and you won't know there was any clover among those trees.

I want to say that the province of the experimental stations is to experiment and find out what we want. I do not want to do the experimenting, Brother Hale, why do you grow an excess of Eiberta peaches; is it because of the special quality of the Elberta over all others?

MR. HALE: When I first planted my orchard in Georgia I did not know any better.

Mr. HOLSINGER: I think it the province of any of us who desire to make experiments. We are all supposed to try experiments. If not, we may go out and say our grandfather grew this kind of an apple and we will grow it, and our sons should grow it. No one is recommending that everybody should plant seedlings. It is just an experiment, and those who have told this have simply given us their experience.

Mr. YAW: I do not advocate the planting of seedling peaches; I was just telling what the seedling peach did for me. I do not want anybody to understand that I advocate planting seedlings.

Mr. Goodman: All over central Kansas and southern Kansas and some parts of Missouri they are as good as some of our budded fruit. There are seedling peaches scattered throughout southern Missouri which are more hardy than much of our budded fruit. In fact, there are a number of instances in the past year where we had very fine seedling peaches where we had no budded fruit. Use these seedlings and bud from them. That is the way to improve the hardiness.

Mr. YAW: Would you cut a tree five or six years old back?

Mr. HALE: Yes. I came into possession, two or three years ago, of an erchard in which the trees were twelve or fourteen years old. They were up twenty feet in the air. I sawed the tops down to within five or seven feet of the ground—down as low as I could go and leave one branch. I did this in March or April. After two years' growth I have a splendid orchard from these trees; a fine, vigorous orchard. I have made over several other orchards of from eight to twelve years old in a similar manner.

COLONEL ROBISON: I have done the same thing. The young shoots grow so extremely large that if they were cut back twice at least in the summer they would make just as fine trees as you ever saw.

MR. DICKENS: I have trees that have been headed back severely three times. The first time was after the heavy frosts in 1899, and they produced a good crop of peaches in 1900. They had a good set of buds for the next year, but the buds were killed, and we cut back again; and we cut them back every time the buds are killed; and those old trees have as good heads as any trees you will find.

Evening Session-7:30 p. m.

GREENHOUSE WORK FOR WOMEN.

By Mrs. HARRIET E. CHANDLER, Argentine.

That greenhouse work for women is a success has been demonstrated in more cases than one.

In a railroad town of 3000 to 4000 inhabitants, one woman made up her mind to save money, in place of going to the large city near by just after payday and spending her husband's wages.

This woman was going to move, and, having so many house plants it would require an extra load, she sold some of her flowers to neighbors, thus saving the extra hire, making a little money, and above all learning that she could sell flowers in her town.

With \$2.50 she went to a large greenhouse, bought all the flowers she could carry in half-bushel baskets on the street-car, and went home.

Her home was better adapted for growing plants than most, as she lived in a store building on the corner, with large east and south glass fronts. Back of the main room she and her husband lived, heating their living-rooms and the flower-room with one stove.

Her first investment consisted of small plants of petunias, verbenas, asters, pansies, and geraniums in bud, paying thirty cents per dozen, wholesale, taking them home and selling them for five cents each, or sixty cents per dozen. In a day or two, when the stock was gone, taking new capital and getting a new supply, she soon had stock enough to fill a large room.

It is necessary to study the trade and find what the customers want, and supply them. This woman always made it a point to pay cash for all she bought and always to tell the truth—this last piece of advice she said was given her by one of the wholesale florists from whom she bought stock, but she found he did not follow his rule.

Having gone on in this store building for three years, making enough from flower sales to be able to lay aside her husband's salary, she to-day has on a south hillside a small greenhouse, in which she has 700 square feet of bench room and every inch of space is filled. The greenhouse is built lengthwise on the south side of a cottage. On the north wall of the greenhouse, which is the south side of the cottage, she has troughs built which are covered with hanging vines, from which she takes long pieces for decorations. The stock of plants at present consists largely of geraniums beginning to bud, these being the plants most in demand by the trade, although she has a large variety of plants, having in stock from two to a dozen each of about twenty-five or thirty different kinds of plants.

If one is where the demand for selling potted plants is not great, money may be made by growing and selling rooted cuttings or plants from small pots by starting a mail-order trade and advertising in some good papers.

Shortly after this woman decided to build her greenhouse last summer, her husband injured one of his limbs and has been unable to take up his work again. These two put up the greenhouse, which is a very substantial affair. Having bought second-hand timbers and glass, the house has been put up much below the cost of a new house, besides saving the hire of labor.

The heating device in this house is an exceptionally cheap one. A common coal stove was placed in a pit at one corner. For pipe, six-inch galvanized pipe is used. About three feet above the stove a tight damper was put in, just below this damper a T joint of pipe is used, and a pipe is run under the outside benches. No heat is lost in this way—the smoke circulating through the pipes and going out at the opposite end of the house. There is a pipe overhead also, to be used on a very cold night.

In a small town, the business of a florist comes in spells, one might say, such as decoration, Easter and graduation days, Christmas, etc.

While in the store building it was a hard matter to keep a good supply of plants for Easter and graduation times, the plants having to be ordered and brought several miles in a wagon. One Decoration day as high as six wagon-loads were sold.

At graduation time in one day fifteen dollars was cleared in selling cut flowers, these having been bought and then sold.

At the time this flower store was started it was not necessary that this lady should make money, but since the accident to her husband it seems that it may be their work from now on. What work could be better or more enjoyable for one who loves flowers?

GROWING DAHLIAS FOR CUTTING.

By MES. HARRIET E. CHANDLER, Argentine.

With very little assistance from a man, a woman can succeed in growing dahlias for cut flowers. For good results, plant the bulbs about the 1st of May. Plant in the field, after ground has been plowed and harrowed. Place thirty inches apart, and rows four feet apart; cultivate with plow and keep hood. When they reach a height of two and one-half feet they should be staked, as they are very tender and break easily. To save space and work of staking, a good place to plant is under a barbed-wire fence. This also hides the fence.

Keep well cultivated as long as it is possible to get through the rows with a horse. To some florists it is easy to sell a dahlia of any color; others want just certain kinds. Last year we seld to a cut-flower store where they wanted only dark red, white, and pink, taking them at \$2 per 100. The past summer another store took any color we had—taking the whole crop at \$1 per 100. Some days we cut from 1000 to 1200 blossoms, cutting during the season about 10,000. This was not an ideal summer for dahlias, as it was very wet in the early summer and for about three weeks at blooming-time it was very dry. The blossoms this year were not as large as usual.

It is well not to crowd the plants for blossoms too early, as it is almost impossible to sell the flowers before September 1. It is then that those people in the large city who use most of the flowers are returning from their summer outings and are ready for the fall gaieties.

After the dahlias are through blooming (which is not till the frost comes) the tubers may be taken up and a ready sale found for them in the spring.

In July and August of the past season the carnation crops were poor and we found good sale for asters then out. These plants, having been raised in the greenhouse and put out early, did not wait to be fall asters but bloomed in the summer. These sold the same as dahlias, \$1 per 100, blue, white and lavender colors selling the best.

"Where there is a will there is a way." A woman certainly can succeed in the flower business.

DAHLIAS AND HOW TO SUCCEED WITH THEM. By Dr. Geo. P. Lux.

The dahlia is a native of Mexico and was named in honor of Dahl, a Swedish betanist. It was mentioned in print as early as 1615. Having first been introduced into Spain, it later gained a foothold in English gardens, where its greatest development was made. In its wild state the dahlia is a perennial single flower and belongs to the same botanical order as the common oxeye daisy. The new forms are the results of selection, cross-fertilization, and high cultivation. There are now about 3000 named varieties. The different varieties are classified in regard to form, as show, fancy, decorative, cactus, single, and colorette. The show class includes large, double, close-flowering varieties of a single color and those in which the tips or edges are darker than the ground color. They are the old ball-shaped type. Fancy dahlias are similar in form to show dahlias, but they are striped, splashed, margined and edged in almost every conceivable variety of form and manner. Some very pretty color combinations are found.

Cactus dahlias are of recent introduction and the most beautiful of the entire family. The flowers are perfectly double, irregular in outline, loosely arranged, and have long, graceful stems; the rays or petals are long, pointed, and rolled backward, forming a pointed tube.

The decorative class includes all large, loose-flowering varieties that do not properly come under the show, cactus or fancy classes. Single dahlias should have but eight rays or petals. The new colorette dahlias are single, with a fringe of tiny petals around the center.

The recent interest taken in the dahlia is one of the most remarkable features of modern floriculture, and is partly due to the introduction of the

cactus and the twentieth century varieties. The dahlia is the mest prolific in new shapes of anything in the flower kingdom, and in fact rivals the dressmaker and milliner in styles and fashions. Almost every color and shade excepting blue has been produced. They are becoming one of the leading bedding plants, as well as an excellent addition to the list of popular cut flowers.

CULTURE AND PROPAGATION.

Dahlias are easy to grow. Although perennial, they are not hardy in our climate, but can be kept over winter by storing the roots in a cellar, like potatoes. The roots grow in clusters and closely resemble sweet potatoes. If the roots are small and weak, it is best to cover them with sand or moss to keep them from drying out and losing their vitality before spring. Propagation is by seeds, cuttings, and division of roots. New varieties are obtained by raising them from seed. They have to be grown about three years before they show their true characteristics. If you have plenty of room, this is a very fascinating diversion. Propagation by cuttings is more in line of the commercial florist or introducer. Propagation by division of roots is the most popular way, and each division produces the same variety as the plant from which it was taken. Each division must have an eye from which it will start a sprout. These eyes are found only around the crown or top of the roots. If a tuber is broken off below its eye it is called a blind tuber, and will never grow. It is best, therefore, to start the eyes by placing the roots in a warm, moist place a short time before dividing. Plant out as soon as danger of frost is over, which is about the middle of April in this locality.

SOIL, LOCATION, ETC.

Any good soil will do, but a loose, deep, sandy soil is preferable. It need not be very rich; in fact, too rich a soil is injurious, because it makes the plants grow too fast and rank, and the early buds fail to develop properly and the stalks become too large and are top-heavy, so that they require careful staking and tying. If this is not done, you will discover, after one of our heavy Kansas wind- and rain-storms, that your largest and finest stalks are broken asunder, and you will exhaust your vocabulary before you find words to describe your feelings. All this may be avoided if you do not make the soil very rich at planting-time, but apply the fertilizer as a top-dressing and carefully work it into the surface after the plants begin blooming.

The finest dahlias I have ever seen were grown in Colorado, in sand, which afforded excellent drainage, and thereby prevented stagnant water and sour soil, which would have resulted from their irrigation had the drainage not been perfect. Cold, dewy nights are especially favorable to the dahlia's most perfect development.

Only one sprout should be allowed to grow and it should be pinched off when it is six inches high. This will force it to branch low down to the ground and help to avoid the using of unsightly stakes. I like to plant the tubers so that the top is about six or eight inches deep. Cover two inches deep at time of planting and gradually add a little soil around them after they are up, something as you would listed corn. Give thorough cultivation from the start until they commence to bloom, but after that keep the surface well stirred, but only to a depth of an inch or two. If the surface soil

is kept properly cultivated it will act as a mulch, and they will not dry out and need watering so often. Too much watering is injurious, because it causes soft and rank growth and prevents free blooming. The first heavy frost catches the dahlia in all its glory. They wilt as if they had been dipped in boiling water, and their loss makes you feel about as sick as they look. Cut off the tops now, take up the clumps intact, and store them in your vegetable cellar until the next spring, when you can have the fun all over again.

The dahlia is a flower for the rich and poor alike, because it is easily grown and does not require an expensive greenhouse, as does its one rival, the chrysanthemum. This partially accounts for its rapidly increasing popularity. I close with the wish that there will be enough interest awakened that we may have a dahlia show in Topeka next year.

REMARKS.

DOCTOR LUX: My beds from which I got best results were raised above the ground a little, and that gave better drainage. If the soil is pulverized well you will have better results. I had out about thirty-seven or thirty-eight different varieties last summer. The best were: Pink, Doctor Gates and Brunhilde (both cactus dahlias); A. D. Livoni and Pink Dandy (show dahlias); pure white, Storm King and Mrs. Winter; white suffused with lavender, Arabella and Miss May Lomas; black, Zulu and Black Diamond; royal purple, Admiral Dewey and Frank L. Bassett; yellow, Clifford W. Bruton; red, William Agnew, Strahlein, and Red Hussar. Fancy dahlias: Frank Smith, dark maroon tipped with white; Admiral Schley, crimson with white stripe in each petal; Dazzler, yellow flaked and striped scarlet. Most of these varieties can be obtained from James Vick's Sons, Rochester, N. Y.

The twentieth century dahlias proper embrace the single form, and are of a pink shade, sometimes running into what might be called a roan, with white tip. Many other shades have come out in the last few years. Some single dahlias of the cactus forms have twilled petals.

I like the open sun. They will develop in the shade here. In some localities they grow under different conditions, but I think we make a mistake in fertilizing them too much at the start, and the result is, too heavy, rank stalks. Professor Harshbarger had so many last year that after a big windstorm nothing but the stalks were left. You can use commercial fertilizer, but I think ordinary cow manure better. You should work this fertilizer in later in the season. The blossoms will sometimes open up small. Then it is well to give them fertilizer on the surface; but don't dig deep or you will cut into the roots. That is the trouble in staking; if you put the stakes close to the plant you are liable to injure the tuber. [Always stake at planting-time.]

A MEMBER: Do you thin the blossoms?

DOCTOR LUX: Not usually. Some really handsome varieties have stems so short your can only get good stems by cutting several flowers together, and in this way you thin them.

MARKET-GARDENING AS PROPRIETOR OR WIFE.

By Mrs. O. F. WHITNEY, Shorey.

It is quite essential that the wife enter heartily and intelligently into the details of the business as well as give a helping hand. She should read carefully the farm journals at hand, and a variety of catalogues, and, from her observations and best judgment, counsel with her husband, as a very much interested helper and partner might do, especially in the case of beginners with limited means. A market-gardener is one that may produce fruit and vegetables, butter, eggs, poultry and honey for the market, whether it be for a part or all of the year. If one is fortunate enough to have a good greenhouse in connection with his garden work, it will aid materially in getting early truck in the market, such as lettuce, parsley, forced rhubarb, radishes, cucumbers, and the like.

Or just to have good hotbeds in which to raise plants for early transplanting in the garden, such as tomatoes, cabbage, peppers and sweet potato plants, and eggplant, is very helpful. To be very successful we must ever strive to have our crop the first of its kind on the market, or among the first, and of the very best quality.

Asparagus is about the first crop from the garden in the spring; then closely follow rhubarb, radishes, spinach, and lettuce. In preparing the garden-truck for market a woman's help and taste of arrangement in box or basket means much in the selling price of the articles. Painstaking and a care that shows pride in the work seem more to belong to the women, than to boys or men, so that girl or women helpers are desirable in this line of work. One woman or an industrious girl will tie for two boys or men to bunch, and the tying will be firmly and neatly done. In wiping and placing tomatoes in baskets, the woman or girl will prove the better help, with boys at hand to fetch and take away the full baskets. Woman should always be spared the heavy part of the work, as that does not belong to her. Her value is in her taste, nimbleness of movement, and faithfulness in application to work. Notwithstanding the confining and necessarily hard work that is a part of it, yet fruit-growing, gardening, poultry-raising, and beeculture are most delightful and healthful occupations.

Fruits and vegetables never taste so good as when freshly gathered in the cool of the morning; and in so many cases, especially with the fruit, we need not gather it for table use till it is perfectly ripened, and has attained perfection in sweetness and juiciness; whereas, for market, it is usual to gather before it is thoroughly ripened or it would not stand transportation.

There is no better butter made than that produced by the intelligent and industrious farmer or market-gardener and his wife. It is an advantage, also, to have bees, for they aid in tertilization of fruit and vegetables. The expense of handling is small, and proportionately the profit on honey is greater than on any other produce. The fear of the sting from the bee is probably one reason more than any other that we are loth to have them about; but with a little care and study of their habits, and with good nerves, one would be sure to come out the winner.

A variety of produce in your load helps to sell to better advantage the whole load; so seek to have variety. A woman may help in the different

lines of this work surprisingly. For it is possible for women to take almost the entire care of the bees and the gathering of the honey. Another woman attends entirely to the gathering of the fruit; she takes a number of boys or girls, or both, as the case may be, and assigns them each a place of work, sees that the picking and placing of the fruit is thoroughly and carefully done, and a record of the work of each is kept, or she may take the help and gather vegetable crops in the same way, such as asparagus, rhubarb, radishes, peas, beans, tomatoes, onions, cucumbers, etc. Where the business is extensive enough to require a telephone, the woman is given a position that will fill every moment. Orders for the different plants, fruits, vegetables or other produce will come in over the telephone, and the better she is prepared to answer as to kind and quantity at hand, the better is she able to fill her position and be a real helper.

In another instance, the wife does all the selling of the crops. She is at the market in the morning soon after four o'clock, carrying on her business of selling market-garden produce to merchant and truckman, with a little son at her side for help and company. The saving of the seed of especially good varieties of vegetables is an advantage, and usually falls to the woman's care. The woman also may be the bookeeper, the husband or proprietor keeping a day-book and the wife placing all accounts in the year-book. Accounts of the business and a record of crops should be kept, as it is helpful for reference in following years, as well as in being able to know just how you stand as to profit and loss.

The cases I cite are those where the children in the family are grown past the age of needing a mother's undivided attention and are able themselves to lend a helping hand.

We pay a woman per hour the same wages as a man; a girl, the same as a boy, for she will do more and better work, which will make up in value for the heavy part that falls only to the man or boy.

In almost every case the young people will grow and gain in health and flesh while putting in regular hours, day after day, and keep in the best of spirits. They quite enjoy the rivalry that goes on during work-hours, and if one is inclined to lag er shirk, he is pretty apt to hear from the others in a way to spur him to better action. The better the work is done the more interest is taken in it, and the result is a pleasure and pride in it. A very pleasant feature of the business is the diversity of work—the planting and care of the different crops; the variety of work in preparing each for the load adds a spirit and life to it all.

Good will and earnestness in labor depend very largely upon the influence of the proprietor or one in charge of the force of workers. To be pleasant and cheerful yourself, with a kind word, a little encouragement, a bit of advice just in the right time and place, does much to harmonize and advance a good feeling and keep the work going steadily on, permeating their lives and ours with principles of just dealing with our fellow men and helping to follow the blessed Master's teaching, that we love one another as He has loved us.

THE HOUSEKEEPER'S HORTICULTURAL SUPPLIES FOR WINTER USE.

By ISABELLA STOUT, Topoka.

Among all classes of fruits and vegetables there is quite a large per cent. that is not good for commercial purposes; some blemish, some little defect that in no way affects the healthfulness of the fruit but puts it in the lower grades when brought into market. It is the loss sustained among this grade of fruit that often makes fruit-growing seem unprofitable. It is not an easy problem to solve, this of how to care for and save this part of the crop. But the financial side that is to be considered in this paper is well worth considering, and that is, how best to preserve and make the most out of this surplus fruit.

Of necessity, a good many things must be left out. To write on a definite subject and keep within certain metes and bounds is not an easy thing to do. But my field extends ever such a wide area, and includes such a variety, that it gives me the privilege of climbing over fences into anybody's orchard, or through the hedge into their berry patches, or out among the cucumber vines, just anywhere, to see where the greatest waste is going on, and discover some remedy; so the subject best fitting my paper would seem to be "Gathering up the fragments, that nothing be lost."

It would be an easy task to tell how we laid by our stores of fruits and berries for winter use, and prepared good things for the table, so that nothing was wasted, say forty years ago, less or more, away back on an Ohio farm, that was large enough to have the variety of soil for growing about everything that was pleasant to the eye or good for food; out from city or village, where most of one's supplies had to be grown; where our berries were gathared from fields and woods, where nature planted them; where the great forests yielded an abundance of grapes, of such fine flavor as hardly to be excelled by our cultivated varieties. But in those days the apple orchard was considered the main source of supply; and the possibilities of the apple orchard were so great then, and are so great now, that we still crown the apple king of fruits. There is no other fruit that will throughout the year take the place of the apple. It makes possible some of the best things for the Christmas cheer. Even the roast pig that decks the feast is not complete without the apple in his mouth; and who would think of Christmas without mince pie? When William Cullen Byrant, who is par excellence the poet of nature, with a heart always turning back fondly to the woods and streams, the wild flowers and the goldenrod, gave to the world that gem of poems, "The Planting of the Apple Tree," he only told a part of the story. He sang of the planting of the tree, of the shadows for the noontide hour, and of the leafy sprays for the crimson-nested thrush to nest in; of the world of blossoms for the bees, and flowers for the sick-room, ripe fruits for June and August, and of how the sojourners beyond the seas would ask in what fair clime they grew. These thoughts are all as true as they are poetic.

Then another poet takes up the strain. Whittier, in his masterpiece, "Snow Bound," tells how, while the storm is raging without, standing between the spreading andirons the cider in the mug simmers slow and the apples in rows sputter before the fire.

A winter scene in the home is hardly complete without the apple. In the

handiwork of creation we were not provided for like the honey-bee, with the power and instinct to gather honey from the clover-field and the fairest flowers. We must get our sweets some other way. The sugar kings have prepared the sugar; the horticulturists have given us an endless variety of fine fruits and berries. So, if our tables do not show any good thing to eat, it must be the fault of the housewife. The long years of experimenting in canning and preserving fruits and vegetables have brought that line of work to such a degree of perfection that almost everything eatable that is grown can be preserved in some way for winter use, and there need be little difference between our June and our January dinners. There was a time when we looked forward to the winter days as the time of dried fruits, mince pie, apple butter, and preserves, all good; but six months without any fresh fruits or berries seemed a long time. When we consider how small a number of people grow fruits, when compared to the multitudes who use them, we semetimes wonder how there can be so much let go to waste. There is a loud call for economy along the line of wasted fruits. We might begin first of all with our apple orchards, for it is here that the greatest waste is often found. Go with me, if you please, into some of your neighbors' orchards, and see what we will find. The ground is covered with apples, some quite rotted away, some specked a little, and a few quite sound-enough fruit wasting to make quantities of cider and vinegar and butter for home use and the market, products of the apple that pay well. This dropped fruit can be gathered up in spare hours, that are often spent in whittling sticks and wondering what to do to make the farm bring a larger income.

A lecture delivered by Russell H. Conwell some years ago, and now published in book form, entitled "Acres of Diamonds," ought to be in every family and be read carefully at least twice a year. It is so suggestive of what one can do with apparently small beginning and small means, if only an effort be made. Acres of diamonds right at home, and nobody to dig them out; right on the home place of people who, looking over at some prosperous, economical neighbor's farm, whose owner knows how to make the most out of everything, by gathering in the fragments, wonders how it is they succeed so well. There are gold-mines in every community that have never been worked—not even prospected for. Every city and town of considerable size ought to have a supply-house where home-made goods are kept and sold, on commission or some consignment plan. Fruit-growers might cooperate on this line. It would be a good movement for the women of the country to establish a supply-house where their butters, jams, jellies, pickles and canned goods could be obtained.

Glass only should be used in canning. No woman should be afraid or ashamed to label her goods with her own name, for it is an honor to know how to do things. It is just as essential to be able to identify home-made supplies by their brand as factory goods. What would we think of a factory sending out goods without a brand? It is always policy to use good business methods. This kind of a market would revolutionize the methods of a good deal of the home canning, which is too often done without any regard to the size, color or quality of the fruit, thinking that anything is good enough to sell. When goods are graded it is a stimulus to do good work. We readily see what can be done in the way of working up horticultural supplies at our fairs, where the competition is only for a blue rib-

bon or for honorable mention. And where there is a financial side to the question, woman can and would do wonders in that line of work.

Many families who have more than the home supply demands would like to sell their home-made products. They have the fruit and vegetables, the time and ability to make first-class things, but the question of a market comes in. Peddling things from house to house, having all kinds of uncouth things said to one, is not pleasant. So many people put every one who goes round selling things on the pedler list and treat them accordingly, that timid people who have self-respect shrink from such things and become discouraged—people who would gladly go to a supply-house and place their goods on sale. Such houses would do away with much of the cheap and poor preparations that are gotten up to sell. We all know some of the deceptions that are practiced by unprincipled people-apple butter sold that is good one-third the way down and nothing better than spiced stewed apples the rest of the way. Such palming off of inferior goods makes people suspicious of the honest seller. Home supply-houses would be more liberally patronized than most people suppose, and command a better price than factory goods. Of home-prepared pickles of all kinds, the supply is not equal to the demand. But people who make those things to sell will have to get over their idea that they ought to realize a net profit of about 200 per cent. on their goods. There is a good profit on all that class of goods.

There is a large market, always open, for mince-meat, if people can be assured that it has no flavor of the packing-house about it. As I understand from the fruit-growers, there has seldom been a year when there was so much fruit that was not marketable as this year, and, strange to say, there have been but few offers of fruit butter for sale. Right here in Topeka the supply is not equal to the demand. It is the one butter that sells everywhere when made right, and readily commands from \$1 to \$1.25 per gallon, which is a good profit. If a good many who are pining over their small incomes from farms would begin on what seem to be small things, they would surprise themselves at their profits. A woman in our city, left with a family and no income, knew how to make first-class home-made goods. She set about the task of self-support, labeling her goods with her own name. She placed them on sale in various places in the city, and very soon Mrs. Blank's goods were regularly called for, and commanded the top market price. No such pickles, jellies or mince-meat could be found elsewhere, and she soon had quite an income. I do not know how far her fame might have spread or her market extended, had she not done the unexpected-got married and took up another line of work. I do know, however, that for years afterward you heard her goods talked of. No doubt her home table showed what it meant to know how to do things.

Out in the "golden state," where it is supposed by some that people can just live on fruit, and that it can be had for the picking up, all of which is quite a mistake, a woman was left with nothing but an orchard. She knew how to make just one thing that was good, and had a reputation among her friends for delicious fig preserves. Starting on this line, her business grew until she found herself shipping supplies out of the state. Just to show what can be done by looking up and finding a market for things, a woman who owned two cows was asked what she did with her sour milk. She said she used some, gave some away, and threw out the rest. Being asked if she could make Dutch cheese, or the old-fashioned smear-

case, as it was called, she said, "Yes, I make it for home use." A contract was entered into for all she could make. At the end of the year her books showed a profit of sixty dollars on something she had considered had little money value. So you see she could feed her cows right royally.

The supplies that can be prepared by the thrifty housekeeper from the horticultural fields are legion. Fruit cupboards can be made to overflow and a pertion set aside for the sick and for charity. I have been for a number of years where I could study both sides of the question—the making of home supplies and the finding a market for them; the defects in the one and the difficulties in the other. The one class that need most sympathy and help, it seems, are those who want to do things, but cannot plan well, or quite see their way out. If such persons could be gotten out to the horticultural meetings, and use the question box freely, it would be a great help. Information gained from people we know makes more of an impression than something read in a paper. Interchange of views among housekeepers is just as much needed and helpful as the reports on trees and growing crops. Many women can do wonders with a good recipe. Just before Jack Frost gets in his work among the tomato vines, from the gleanings some of our finest relishes are made.

There is nothing better for a community to stimulate this line of work than horticultural fairs. They set people to thinking and experimenting. and a healthy competition is aroused. We learn from each other. A generous supply of fruits and vegetables for winter use presupposes a good fruit cupboard or cellar. Still, without either, the thrifty, resourceful woman can make out of a common store box a good receptacle for canned fruits. Have the box tall but narrow, so as to use but little floor space, just wide enough for two rows of cans, and pack well around the cans sawdust or bran. This will prevent freezing in any ordinary house. A bit of drapery will take away all unsightliness, and the top will serve for a small table. People of very limited means, with a little tact, and by watching the markets, can secure and keep a good supply of fruits for home use, and not have to draw on charity centers. As I have been looking over this field of work for some days past, the subject has become intensely interesting. The field is so large, and there are so many things to claim the attention; the jellies and jams and pickles and canned goods come crowding in, and standing in rows as it were, each one wanting to be heard on its respective merits, until ene's head becomes as full of those things as Ezekiel's vision was of wheels. The cry is coming up from all over the land for purer food, making the pure-food shows one of the popular things of the day, and exhibitors who make claims along that line are pressing to the front. If purity is needed among any class of foods, it is certainly among our canned fruits and vegetables which are so extensively used. The cheap tin and the unwholesome mixtures of too many of our factory goods leaves a wide field for the home products. We are listening for the answer to the question: Who will open up the market for their surplus product of fruits, which would mean the saving of many hundreds of dollars in every community? The movement must begin with those who are financially interested.

THE MISSION OF THE AMERICAN POMOLOGICAL SOCIETY.

By J. H. Halm, President of the American Pomological Society.

The American Pomological Society, with about 150 life members and a biennial membership of a little over 300 interested fruit-growers from every state in the Union, the British provinces, Hawaii, and Porto Rice, has been organized since 1848. The first preliminary meeting was held at Buffalo, N. Y., with Marshall P. Wilder, John J. Thomas (author of "American Fruit Culturist"), A. J. Downing and Patrick Barry as prime movers. These men were afterwards assisted by John J. Warder (author of "American Pomology"), Andrew Ernst, Nicholas Longworth (of Ohio), Reuben Regan, and Henry Ward Beecher (then of Indiana).

Other noted men in the pomological field who have assisted the society in various states are the Bryants, of Illinois; the Baileys (father and son), of Michigan; T. T. Lyon, for a long time one of the nost noted pemelogical figures of the state; Charles W. Garfield, still in the field. Early workers in Wisconsin were: George J. Kellogg, G. P. Peffer (originator of the Pewaukee apple), A. G. Tuttle, J. C. Plumb, and F. K. Phoenix. The men of Iowa and Kansas have taken an important part in the welfare of the society throughout its entire history.

In Iowa, we have Reuben Brackett, father of Colonel Brackett, of Washington; John M. Dixon, whe was the first to use arsenic for the destruction of the canker-worm and codling-moth.

Missouri has given us Samuel Miller, Norman J. Colman, Goodman, Evans, Murray, Irish, Trelease, and others; while here in Kansas G. C. Brackett, for many years secretary of your Society, Dr. J. Stayman and Judge Wellhouse greatly aided us in the early days. While now your own secretary, Barnes, with Holsinger, Riggs, Taylor, Griesa, Popence and Dickens are to be found on our rolls of membership.

In the fifty-six years of our society's existence, there have been but three presidents prior to my election in 1903: Marshall P. Wilder, of Boston; P. J. Berckmans, of Augusta, Ga.; and Col. C. L. Watrous, of Des Moines, Iowa. Among the important pieces of work which the society has done is the preparation of the catalogue of fruits recommended for cultivation in the various sections of the United States and the British provinces. This catalogue has been revised many times, and the last edition (which appears in the report of the society for 1903) brings the whole matter up to date. It is a most valuable classification of fruits and gives reliable indications of where a variety is likely to succeed.

Another important work that the society has done, and is constantly keeping in mind, bears upon the question of nomenclature.

It has been the guardian of nomenclature of American fruits for over half a century, and the list of correct names, with synonyms, which it has published, and which are to be found in its reports, are invaluable to nurserymen and others desiring correct catalogues.

It has devised a system of rules governing the naming of plants now recognized as reasonable and just by pomologists the world over. It has always taken an active interest in the correct methods of judging fruits, and the reports of the committee on score-card methods of judging fruits are valuable. A report now in hand, which will be included in the special report

of the society to be issued some time this winter, covers the whole subject very completely, and will be of great service to those who act in the capacity of judges at exhibitions as well as those who are teachers in horticultural and agricultural schools. The special report referred to above will be in the nature of a round-up of the present status of the different classes of fruits, what fruits are establishing themselves as commercial varieties, and which ones are being dropped from the lists. Committees of men who are specialists in the different classes of fruits are preparing these reports. A number of them are now in the secretary's hands, and the remainder will be before long, so that we hope to get the report out during the winter. Ours is an international association, working along broad lines, and in close touch with pomologists the world over.

In recent years our society has arranged for ad interim committees on new fruits. Men from widely varied sections of our great country make up the membership on each subcommittee, of which there are seven, so that even the most perishable of new fruits can be promptly examined as they come to maturity. The subcommittees represent pome fruits, stone fruits, grapes, citrus fruits, tropical and subtropical fruits, nuts, miscellaneous and small fruits, and at our last meeting reported on thirty-six new fruits, only one of which, the Hiley peach, when acted on by the full committee, was deemed worthy of the high award of a Wilder medal, the society having a fund left by the late President Wilder for the special purpose of awards for meritorious new fruits, besides a fund of \$4000 which he left for the general purposes of the society. Some idea of the broad scope of our society may be had from the program of our late meeting in Boston. One whole evening was devoted to the general subject of "Pomology in America." First, "A General View," by Doctor Hexamer; "New England," by W. S. Strong; "Canada," by three speakers representing Ontario, Quebec, and Nova Scotia; "The Middle West," by Colonel Brackett; "The South," by ex-President Berckmans; "The Pacific Coast," by Prof. E. J. Wickson. The subjects considered at still another meeting were: "Grading and Packing Fruits for Long Shipment," "Fruit Inspection and the Export Trade," "Should Commercial Fruit-growers Plant for High Quality?" "Pure-food Legislation and its Relation to the Fruit-grower."

One delightful evening was devoted to "Ideals in Pomology"; at another session "Fruit-culture," which consisted of five-minute talks on the following topics by leading members of the society: "The Ideal Cluster of Grapes," "The Ideal Dessert Apple," "The Ideal Cooking Apple," "The Ideal Fruit Package," "The Ideal Market Apple for Transoceanic Shipment," "The Ideal Fruit-grower's Society," "The Ideal Fruit-grower's Family," "The Ideal Fruit-grower's Home," and "The Ideal Journal for the Fruit-grower"; while at another session "Fruit-culture in the Pacific Northwest" and "Judging Fruit by Scale of Points" were considered.

The work of our society, notably in the revision of the fruit-list, has been greatly aided by the United States Department of Agriculture, at Washington, and undoubtedly we shall have further aid in this direction or in others, as may be needed. We feel and know that we are doing grand work for the fruit interests of America, and we ask all interested in any branch of pomology to join with us and help along toward higher ideals in American fruit-culture.

PRESIDENT WELLHOUSE: We want to thank Mr. Hale for coming so far

to assist us in this meeting, and I wish everybody would get up and give three cheers for Mr. Hale.

The cheers were given with a will, and a "tiger" was added.

On motion, the American Pomological Society was invited to meet in Topeka. Carried unanimously.

MR. HALE: I will carry this invitation. On behalf of the society, I appreciate the courtesy and will present the matter to the executive committee.

THIRD DAY-Morning Session.

DECEMBER 29, 1904.

Meeting called to order at nine o'clock A. M. by President Wellhouse. Vice-president Robison was called to the chair and presided during the remainder of the meeting.

Mr. YAW: I would like to ask Hon. L. A. Goodman in regard to the dust spray; what his experience is.

MR. GOODMAN: My experience with the dust spray has been like the experience with all other sprays, not satisfactory. We have been using the spray for five years. In parts of our orchard we cannot use any other. We do not find it a panacea for all evil. By using the dust spray in young orchards from the time the buds come and the time the apples begin to form, we can keep out the scab and insects to considerable extent. In some of our orchards the test proved positively that we saved forty or fifty per cent. of the fruit, and, in another orchard, proved we did not save any. We have used it now for five years, and quite extensively. We dusted last year something like 300 acres, and we propose to continue using it, for we think it a preventive measure for keeping disease out of the orchard. In the latter case we must know just how to use it. We use the best ingredients we can find and the results are such that we will keep on using it. The last two years have been disappointing in the experiments we made. In one orchard, where we had twenty rows of Jonathans and twenty rows of Missouri Pippins, when we came to gather the Missouri Pippins there was not twenty per cent. fit to go into the barrel, but of the Jonathan there was a very much greater per cent. that were fit to be barreled. For us, and in our work, it can be applied for from one-third to one-fourth the cost,

MR. BOOTH: What time of the year did you use the fourth spray?

MR. GOODMAN: About the 1st of July, when the fruit was about the size of a hickory-nut.

A MEMBER: Any difference in the growth of the foliage of the trees?

MR. GOODMAN: No, sir; not in our orchard.

MR. BOOTH: What I want to get at is, it is stated that the time to spray as a preventive for fungus and scab is in August or September. I had this from Professor Gould, in Washington. He says the formation for the apple of the coming year is in August or September, and in order to head off the fungus or scab it is best to spray in the fall of the previous year.

MR. GOODMAN: We dust before the buds start in the spring. We use a great quantity of lime; so much so that the whole ground and trees are

covered with a light coating of lime. We do that before the buds start, and mix blue vitriol with it.

MR. YAW: Will the gentleman give us his experience on spraying for second broad of codling-moth?

MR. GOODMAN: We use one pound of Paris green to twenty pounds of lime. We don't try to catch the second brood.

A MEMBER: Would you state the proportion you use and the fineness of the powdered sulfate of copper?

MR. GOODMAN: I use as the basis for the dust air-slaked lime in large quantities; one pound of copper sulfate to twenty pounds of air-slaked lime. We buy large quantities of air-slaked lime. We buy it from the lime-kilns where it is air-slaked. In the winter-time we have two or three car-loads of air-slaked lime in the orchard. We have a man go through the orchard with a scoop and threw it through the trees.

MR, BOOTH: Have you ever used any of the dust made by the Dust Manufacturing Company in Kansas City?

MR. GOODMAN: Yes, but I do not know what the results are. It is along the proper lines.

A MEMBER: Do you regard powdered sulfate of copper mixed with airslaked lime the same as Bordeaux mixture?

MR. GOODMAN: No, sir; it is better than Bordeaux.

Mr. Dixon: I would like to have your experience with dust for canker-werms.

MR. GOODMAN: We have cleaned the orchard very thoroughly with one pound of Paris green to five pounds of lime dust. Put plenty of it on.

MR. HALE: As between the dust and liquid spray, if water was available in every orchard, and it was reasonably level land, where you could use tank-wagons, would you use dust spray at all?

MR. GOODMAN: Yes, I would use both. There are times when it is almost impossible to get on the land with a team. If I used the liquid spray I would also need the dust spray.

MR. BAILEY: At what age would you begin to spray?

MR. GOODMAN: Just as soon as the orchard begins to bear.

REPORT OF FORESTRY COMMITTEE.

The Forestry Committee reported, recommending that the following be pressed for passage before the coming session of the legislature; the report was adopted:

An Act abolishing the office of commissioner of forestry and irrigation and transferring the control of the State Forestry Station to the Experiment Station Council of the Kansas State Agricultural College.

SECTION 1. The office of commissioner of forestry and irrigation shall cease to exist on July 1, 1905, and the control of the State Forestry Stations at Dodge and Ogallah shall be transferred at that date to the Experiment Station Council of the Kansas State Agricultural College, subject to the following regulations: The Experiment Station Council shall have full power to make any experiments at the Forestry Station and at the Fort

Hays Branch Experiment Station to determine methods of growing foresttrees and kinds of trees best adapted to the conditions and needs of central and western Kansas. There shall be established at each of the Dodge and Ogallah stations a model ferest plantation of twenty-five or more acres, according to plans prepared by the forester provided for in section 2 of this act, and approved by the Bureau of Forestry of the United States Department of Agriculture. Upon the recommendation of the ferester, the board of regents of the Kansas State Agricultural College shall appoint a foreman for each of the Dodge and Ogallah stations, who shall reside thereat and have immediate supervision of the work carried on at his station. The foremen shall be capable men who are familiar with methods of tree culture and central and western Kansas conditions. The free distribution of trees by the stations shall be discontinued after the requests for trees now en hand shall have been so far filled from the present supply as is practicable, but surplus trees or forest products at the stations may be sold at any time at the usual market prices; provided, that all money derived from the sale of any surplus trees er forest products shall be applied to the maintenance of the station making the sale.

SEC. 2. At their first regular meeting subsequent to the taking effect of this act, the board of regents of the Kansas State Agricultural College shall elect a forester, who shall become a member of the horticultural department of the college. The person chosen as forester shall be a man of technical forest training, and whether any candidate for this position is technically trained shall be determined by the forester of the United States Department

of Agriculture.

SEC. 3. The following sums, or so much thereof as may be necessary, are hereby appropriated, out of any money in the state treasury not otherwise appropriated, for carrying out the provisions of this act, for the fiscal years ending June 30, 1906, and June 30, 1907:

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Salaries and traveling expenses:	<i>1906</i> .	1907.
For the purchase of trees and seeds	\$3,000	\$3,900
For labor and incidental expenses	1,200	1,400
Totals		\$4,400

SEC. 4. The auditor of state is hereby authorized to issue his warrants upon the treasurer of state for the purpose and amount specified in section 8 of this act upon presentation of vouchers duly approved by the secretary and treasurer of the board of regents of the Kansas State Agricultural College.

SEC. 5. This act shall take effect and be in force from and after its publication in the official state paper.

[Signed] GEO. W. TINCHER, Chairman. E. E. YAGGY. R. S. KELLOGG. G. Bohrer. ALBERT DICKENS.

MR. TINCHER: Gentlemen, there is one thing that we have run up against, and that is that the people of the western part of the state, especially at Oakley and Dodge City, are fearful that this Horticultural Society is antagonistic to their interests; but we know, of course, that is a mistake. Those of us who have charge of the matter thought it would not be a good thing to have a free distribution of trees in western Kansas. We know something of the political complications of the state during the last ten or fifteen years, and, as a consolation prize, some one is appointed by the governor to take charge of this matter, and it is not always satisfactory to the people; but I have perfect confidence in Governor Hoch, and believe he will do the right thing. I wonder how many members of this Society know what this forestry business has cost the state in the last twenty-three years. Eighty-four thousand dollars. Central and western Kansas need

forest instruction—forest lessons. The committee that have this in charge want to transfer this to the Experiment Station of the college. The work would go on and it would succeed, and the expense would be very little more than in the past. We want this run on a good, solid basis. If we fail we will not be any worse off than before.

PRESIDENT WELLHOUSE: I indorse every word the speaker has said. The station has been mismanaged—sadly mismanaged. The very best thing we can do is to go before the legislature with that bill.

A MEMBER: With regard to the practice of bringing fruits for exhibition purposes, now, I have tried in my class work and in my work over the state to get this thing down to a commercial basis. I believe that is where our exhibitions and fruit interests have got to stand, on a commercial basis. If I am not mistaken, the old pomological society years ago adopted measures against this.

Mr. HALE: The old rule established by the pomological society probably twenty or twenty-five years ago was that no fruit would be admitted to exhibition, or considered worthy by the society, that was grown on wrung or girdled trees. That rule, so far as I know, has not been repealed. It is against the rules of our society to enter such exhibits for competition.

THE NURSERYMAN'S SIDE OF IT.

By E. J. HOLMAN, Leavenworth.

In the beginning, we read from Holy Writ, man was placed in a garden, where were all manner of fruits, etc. If this is so, God was the first nurseryman, and He went further in the beginning than the nurseryman of to-day in that He not only produced the trees but planted and cared for them, bringing them to fruitage, and then turning them over to man.

We judge that a good many of this generation have read the Bible account of creation, and expect the nurseryman of to-day to do as did God in the beginning; that is, turn ever to them trees that will yield an abundance of fruit from the year of planting, the only price being good care of trees and the reservation of one specimen tree. And yet, with this favorable proposition by party of the first part, party of the second, a man named Adam, did not appreciate the magnanimity of party of first part. Said Adam's wife being of a curious nature, and, we suppose, desiring a new dress (and she got it), chose to influence her husband to take advantage of the contract. And, horticulturists of 1904, do you know that sentiment still obtains, that a nurseryman should turn over trees of full fruitage? But though such sentiment still exists, we are glad to state that there is another sentiment, the knowledge that the nurserymen of to-day are not gods, and hence are limited in their responsibilities; and where the nurseryman's work ends the planter's begins. And so certain rules are established and of common acceptation, among which are these: That the nurseryman must take the seed, the cutting, the scion, the sprout, the layer, and by various means propagate and produce the tree, vine or plant in the best possible condition for the planter. The preliminary responsibility is with the nurseryman; the outcome with the planter.

It takes much time, patience and care on the part of the nurseryman to

prepare himself to meet the demands of patrons; and many would-be nurserymen fail at this point by not having the proper stock of patience and dollars. Some plants and cuttings and a few June-budded trees, especially the peach, which is largely planted South, are about all that can be made to produce in one year. The most of our shrubbery and fruit-trees require two and three years, while varieties of ornamental stock and evergreens require from four to ten years. It may be said that a nurseryman cannot complete a stock in less than eight or ten years. It is slew and not always successful for many reasons; but, when successful, we think it is the most satisfactory occupation on God's footstool. For is not the nurseryman the follower of Him who provided the first trees? And is not the business of all nurserymen to be of all men the most interested in the planting of vineyard, orchard and forest in yard, lawn, and park? of making the country productive and profitable? of beautifying both city and country? This is the nurseryman's aim, his ambition, his business; and his success is bound up in the horticultural progress of the people. Of a truth it may be said that the necessities of a nurseryman compel him to desire his neighbor's prosperity; and so it is an easy task to persuade people to buy his products.

It was said of the man who causes two blades of grass to grow where but one grew before that that man is a benefactor of his race; then what will you say of those who cover the country with orchards yielding healthful, luscious fruit, trying to strew the pathway to every home with bright, beautiful flowers? To accomplish which laudable end the nurseryman's representative sometimes uses the best types of the engraver's and painter's art, supplemented by a special vocabulary, at times savoring of exaggeration and hyperbole. What a temptation! What would you do? Will charity condone it?

I do not write of the tree dealer who unscrupulously takes the odds and ends from the nurseryman and labels them falsely or otherwise to suit his ends; nor the tree pedler who goes to the woods and digs wild vines or bushes. giving them fancy names, and unloading them at fancy figures on gullible people; nor of all the originators and introducers of novelties, among whom are many fakes. These are not nurserymen but despised fakers, who assume the role of a nurseryman for nefarious ends, and are alike the enemy of the nurseryman and the people. But nurserymen and people alike may write, and remember that these characters whose business it is to deceive for their own ends alone will continue on while this old world stands, and while plants flower and trees fruit, unless (a big "unless") we reach a generation in time that overcomes the susceptibility of the present and past ages. A good insurance against these human leeches is an active identity with horticultural societies and a constant study of horticultural literature: it is the unwary that are caught napping. Sometimes the get-rich-quick idea seduces the usually watchful. A few who remember back in the forties of the past century will call to mind the Morus multicaulis craze that swept the country, and how many impoverished themselves by investing their all in mulberry trees to produce silk, to gain great wealth. The following decade introduced the wine-plant craze, and what was termed a wine planta special variety of rhubarb, the Victoria-sold at fabulous prices, to the emptying of many pocketbooks and sad disappointment in the end. These false inducements are constant. To-day we call to your attention the ginseng craze, with a fortune in an acre; and the seedless apple, price three dollars

a tree. These things are mentioned that the true nurseryman may be relieved of a burden that is too often imposed on him. One that spends a good portion of his life in preparing himself for business cannot, will not, fritter it away in a moment by any questionable action.

Nurserymen are the victims of many unexpected calamities. A low temperature wipes out blocks of trees just ready for the market; a high temperature blights, and the same loss; diseases of root and branch, insect enemies, incompetent, unfaithful, unobtainable help and the floods that in a few days destroy the work of years are contentions we all have to meet; and, being in the susceptible class, a nurseryman would be a novelty who did not have a stack of unpaid bills and notes. While many nurserymen live, few become wealthy. Farmers by the thousands and many specialists in agriculture, horticulture and floriculture grow rich, while you may count the prosperous nurserymen of most any state on your hands. If the market is not satisfactory, the farmer puts his grain in the bin, leaves his hay in loft or stack, allows his cattle to grow larger, and can cold-storage his fruit; but the spring comes to the nurseryman, and in the few short weeks from thawing to budding it is hustle and sell, or burn.

Nurserymen are conservative characters, from their experience and the discipline of their avocation, and, being so closely identified in individual and state welfare, become the best counselors and advisers of the novice in all lines of horticulture. It is their duty to test the value of all varieties of trees and shrubs, and to possess advance information on all new introductions, and they are students in, if not adepts of, nomenclature, meteorology, entomology, botany, and kindred sciences.

Nurserymen, by the extent of their trade, at times overlapping states, even nations, employing many wage-earners, distributing much money, and largely enhancing the wealth and welfare of a community, become in their business prominent, valued citizens. One thing a nurseryman avoids is political ambition; it is incompatible and destructive. Although the president of our national association was elected to Congress at our last election, we predict his extensive nurseries will have a new manager, or cease, should he continue in political life. Although nurserymen, as a rule, avoid statecraft, we are extremely pleased with the horticultural side of our president, Theodore Roosevelt. He is doing more than any or all of his predecessors for the preservation of our native forests and parks, for reforestation, and the utilization of hitherto extensive areas of unproductive land. He is entitled to honorary membership in all horticultural fraternities.

All nurserymen lead the strenuous life, possessed of active minds and strong bodies, for their labor is arduous and constant, in season and out of season. Their strong hopes are daily strengthened as they see the world growing better, mankind coming up to an exalted state, with a betterment of all life's conditions. This is the stimulus, the goal: every family with a home, its own vine and fig tree; the earth re-Edened and fitted to turn back to the God who gave it for man's good; and the nurseryman called from labor to reward.

MR. BOOTH: In his paper he paid a good deal of attention to the tree pedler. Now, I would like to know who has committed the greater crime, the nurseryman who sold those trees to the pedler, or the tree pedler who sells them to the farmer?

MR. HOLMAN: The farmer ought to know who he is buying from. When he gives his order for trees, he should ascertain who the man is he is buying from.

PHILLIP Lux: We have confidence in our nurserymen, and we buy of them; and we purchase trees that we find are a disappointment, and nothing but scrub apples. Who is to blame?

MR. HOLMAN: These things, I know, have done great harm. They will occur. The first gentleman I came in contact with when I came to Kansas was called a nurseryman. I found he had spent his whole life as an engineer, out here in the West, in the service of the government. He had never had experience with trees, nor had he any education. He was as honest as the sun in its course. He did not know anything about trees or nursery. He was imposed on all around, and he soon had the worst mix-up you ever saw. He was selling trees in the best of faith, not knowing what the trees were himself. All nurserymen are exceedingly careful, and they try to avoid mistakes. It is a calamity to set out an orchard and find it is not what you were expecting to obtain. I believe we have some most honorable nurserymen in the state of Kansas.

MR. LUX: We have, around this city, perhaps as honorable nurserymen as any in the United States. They grow very fine trees, yet they have a method of propagating trees that I condemn. I won't say anything to disparage their characters or honesty, but their method I condemn. They take their scions knowing only that the tree is true to name. They have a method of going into an orchard and taking their scions, for instance, from a Missouri Pippin that is diseased. Now, I could let them go into my orchard and cut from my trees, but what would they get? They would get trees that are diseased.

MR. TREDWAY: I find the worst difficulty with these tree pedlers is in going to the nurserymen round about and buying up the stock the nurseries cannot dispose of. I have in mind a neighbor who was a nurseryman. He had great quantities and varieties of apple trees that he could not sell and he gave me a number of them. That was ten or twelve years ago, and I took them and put them out. He told me he would sell thousands of them for three dollars a hundred. There was a pedler who bought up the trees from that nursery and went out and sold them at twenty-five cents a piece, and they were always "just what was wanted," but they were not true to name at all. Very many nurserymen desiring to get rid of such stock will almost give it to anybody.

MR. TAYLOR: There is a great deal of fake in the nursery business. I am a reformed tree pedler myself. There is more of this buying of old nursery stock, three-year-old trees, and that sort of thing, it being sold away from home, than people understand. Brother Booth has a first-rate recipe against the tree pedler, and that is to show him the road. The country is full of reputable nurserymen and you do not have to go far to find one. They are a reliable set of men.

MR. BOOTH: I want to cast no reflection on my old friend Holman. I bought trees from him two years ago and they are very fine.

MR. WELLHOUSE: This reminds me of an incident that happened to me in 1876. I had a let of trees, perhaps 10,000 or 15,000, left over, that we did

not plant. One of these tree pedlers came to me and offered me more for those trees than I was asking for them. I happened to know he was just such a man as Mr. Taylor and Mr. Tredway described. If he had bought my trees he would have sold all of them as coming from me. But I did not sell them. He offered me, I think, two cents a tree more than I asked, but I did not sell them to him.

MR. YAW: A few years ago I drove eighteen miles facing a brisk wind to get 100 Maiden Blush. I set them out and cultivated them until they were nice and prolific, but they were not Maiden Blush.

REPORT ON WORLD'S FAIR EXHIBIT.

By W. F. Schmill, Superintendent Kansas State Horticultural Exhibit, World's Fair, St. Louis.

Our exhibit was fully installed on the opening day, and was the only state having a general exhibit of fruits that was ready. True, four other states were ready in the building, but they only had apples alone, while a general exhibit consists of a variety of fruits grown in each state or respective locality. Under a ruling made by the department, we saved ten per cent., while other states that were not ready lost this per cent. of their earnings of awards given them. This gave us some prestige on the start, but whether considered by the judges finally I cannot say, as other states were trying to have this decision revoked. You, as fruit-grower, will agree with me when I say it is no easy task to keep up in first-class condition through the summer months, for a period of 217 days, an exhibit of this kind, as the fruits are constantly decaying and have to be replenished with a fresh supply almost daily, when, owing to conditions, fruit was hard to get, because of partial failures of crops for the past two years.

The public generally admired our display and design, and we endeavored to keep it up the very best we possibly could, and we received favorable comment not only by the people of our state but those of other states; thousands examined our specimens and pronounced them among the best. Often was heard the expression, "Why, I did not think Kansas could grow such apples, peaches, cherries, pears; why, they are simply fine! Kansas is surely all right. I am going out there to look it over and investigate for myself. I do not wish to live in a country where I cannot grow fruit and have a good orchard. Your state seems to offer these inducements. I shall likely be one of your citizens."

Expressions of this kind, coming often as they did, made us feel that we were making headway as a fruit-growing state, and that our work seemed to prove satisfactory to the many strangers that appeared from other states of the Union.

We were awarded the grand prize on installation and display, on the actual condition of the fruits, as well as the designs. We won this on our merits, so the judges proclaimed. Pardon me for making the following statement: The exposition company awarded me personally a gold medal for keeping the exhibit so well installed during the exposition. I am proud of this and will ever keep it as a memento of the Kansas fruit exhibit. To quote the chief pomological officers who had charge of the exhibits: "No state did better than Kansas, taking into consideration the small number of entries made compared with other leading fruit states." It is true, as

before stated, our entries were small, and premiums could be given only on exhibits made. I can best illustrate this by stating that of the 550 bushels of apples put up in the year 1903 about 450 came from the orchard of P. H. Thomas, Wichita. Only one medal could be given on this display. Thomas was given a silver medal or second prize on points of color, flavor, and uniformity of sizes as placed on the plates, and would have won the gold medal had not his apples been undersized. This was caused by the trees overbearing, which naturally made the specimens small.

Again, if these 450 bushels had come from over the state, a bushel here and a peck there, our entries would have been increased greatly and awards given in a like proportion. Some might say, Why did you not gather them elsewhere? In answer, you are all aware that the crop of 1903 was almost a failure. We were compelled to gather wherever they could be obtained. I found that the apples from the Thomas orchard were less defective, freer from blemishes, and the only place I could get them.

Entries made were 167 in all classes, as follows: Apples, 32; peaches, 15; plums, 18; pears, 14; cherries, 10; crab-apples, 5; apricots, 2; grapes, 20; quinces, 4; Japan chestnuts, 2; American chestnuts, 2; strawberries, 9; raspberries, 10; blackberries, 8; gooseberries, 7; dewberries, 4; currants, 6.

The preserved fruits in jars aided us materially, as the display made the fresh fruit far more attractive, making the colors blend and harmonize. The remark was common, "My, Kansas looms up! California cannot beat it. Hurrah for bleeding Kansas; she is in it!" I am well pleased with the outcome, and hope my efforts will meet the approval of all. In addition to the grand prize, we won three gold medals, eighteen silver, and twenty-two bronze, as follows:

Holsinger Bros., Rosedale, exhibit of fruit, gold medal; P. H. Thomas. Wichita, apples, silver; State Agricultural College, Manhattan, fruit, silver; Geo. A. Blair, Mulvane, fruit, silver; Neil Buie, Argentine, fruit, silver; M. E. Chandler, Argentine, raspberries, silver; J. R. Davis, Rosedale, blackberries and dewberries, silver; Jas. Dukelow, Hutchinson, apples. gold; H. G. Hughes, Rosedale, fruit, silver; W. F. Schell, Wichita, fruit, silver; J. Keller, Arkansas City, pears, silver; Ed. Lyon, Udall, apples, silver; Thos. Mason, Belle Plaine, apples, silver; J. S. Payne, Argentine, fruit, silver; J. C. Peck, Argentine, fruit, silver; H. Schweiter, Wichita, grapes, silver; Geo. E. Rose, Rosedale, plums, silver; J. J. Alexander, Norton, plums and peaches, bronze; Ed. Allen, Wichita, gooseberries, bronze; John Brown, Wichita, peaches, bronze; Brazelton & Son, Wathena, fruit, bronze; B. F. Smith, Lawrence, pears, silver; Wm. Cutter & Sons. Junction City, fruit, bronze; F. W. Dixon, Holton, fruit, bronze; A. H. Griesa, Lawrence, fruit, bronze; H. C. Hodgson, Little River, apples, bronze; G. L. Holsinger, Rosedale, raspberries, bronze; E. H. Cooley, Wichita, apples, bronze; A. M. Butler, Wichita, grapes, bronze; S. M. Johnson, Turner, plums, bronze; G. S. Johnson, Turner, peaches, bronze; Mrs. Rodkey, Wichita, grapes, bronze; T. B. Young, Wichita, grapes, bronze; Joe Fager, Wichita, Japan chestnuts, bronze.

One other important matter I wish to speak about, and it is the keeping of our apples in cold storage. They kept remarkably well, and superintendents of other states often spoke about our apples keeping even better than those of other states. Samples of Grimes kept fifteen months; Jonathans better. All depends on the gathering and handling. If picked carefully

and wrapped in the same manner, I am sure that specimens of Winesap and Little Romanite will keep about twenty months. In fact, we are going to see just how long they will keep, having left some in the cold-storage plant as a matter of test.

In conclusion, I wish to thank personally the members of the Society who aided me in making this exhibit. I feel that it has been successful; we received much praise from all over the country, and I leave it with you to be the judge if Kansas succeeded with her fruit exhibit at the World's Fair in the year 1904.

Mr. TAYLOR: I would like to ask if any exhibitors in St. Louis escaped from getting a medal of some sort?

MR. SCHELL: I cannot answer it.

Mr. TAYLOR: Well, you read of several people who got the same medal for the same show. Did it mean that any one who had apples got a geld medal?

Mr. Schell: I presume.

Mr. Smith: I got a bronze medal and a diploma for seventeen varieties of pears.

Mr. Schell: There were no prizes given to any person, to any one, for the best of anything; no prizes given for the best of apples; it is simply a score. If you make an exhibit and your fruit scores up to a certain point you get a gold medal; if another point (lower), a silver medal; if another point (lower), a bronze medal. It is simply a record of the score that that man's exhibit shows.

Mr. Holsinger: There were a great many exhibitors who got no award at all. In our locality we had fruits that got no mention at all. Where the fruit was good, it makes mention of those who produced and sent fruit that was worthy of mention; if it was extra good, a gold medal was given; it it was very good, a silver medal was given; if it was good, a bronze medal was given. During the cherry season we shipped cherries from one orchard every day. They were not worthy of a medal at all. If they scored to a certain point they got a certain medal; if they did not they got a less medal.

Mr. SMITH: The medal contract was let to a jeweler in New York to manufacture. This jeweler wrote me I could have a gold medal for so much, or a silver medal or a bronze medal for so much. I took a bronze medal.

THE STRAWBERRY.

By F. W. DIXON, Holton.

I have grown strawberries with more or less success for twenty-three years. I began when quite a small boy. I have had to unlearn so many things that I was sure I had learned that I have doubts as to whether I knew anything about strawberries. I will outline a few facts, and the balance the grower must learn; for there is no instruction given, even by the best of authority, that can be implicitly followed.

Any location and soil in the state will grow good strawberries, but, of course, some places are better than others. I have tried almost all locations, and planted in several kinds of soil. One year one place does the

best; another year the other place does the best. Some varieties succeed on a heavy bottom soil, and others succeed best on the poorest upland soil that would be an entire failure on our best soils.

VARIETIES.

For early market, I would recommend August Luther, Excelsior, Bederwood, and Johnson's Early. For general purposes, Senator Dunlap, Warfield and Gandy are far ahead of any other varieties on our grounds. Gandy fails sometimes, but the other two never fail entirely. Aroma, Ridgway, Haverland, Bubach, Clyde, Crescent, Parker Earle, Splendid, Staples, Saunders, Stayman, Sample and Windsor Chief all do well generally, and no one can make a mistake by planting some or all of them. It is best for the grower who is growing for market to confine himself to as few varieties as possible, but he must test a great many varieties to know those that succeed best on his soil.

For family use, the following, in order of their ripening, are the best:

August Luther, Bederwood, Stayman, Senator Dunlap, Warfield, Aroma, and Gandy. Dunlap and Warfield are the best for canning and preserving.

For experiment and further trial I would recommend the following: Auto, Climax, Early Hathaway, Miller, Palmer, Texas, and Marie. There are others that might pay to test further.

FERTILIZING.

Most of our soils here in the West do not need any fertilization to produce the best crops. I have used stable manure for potatoes and followed with strawberries, and I cannot say that it paid on the strawberry crop. One reason is that the plants go too much to vine if soil is too rich. I have never used any commercial fertilizers, and do not think I will waste any money on experimenting.

PLANTING AND RENEWING.

The strawberry field should be plowed the fall before planting, and all planting should be done in the very early spring; it is entirely too risky to plant in the fall.

There are a number of ways recommended to plant strawberries, any of which is good if the results are satisfactory. For the past three seasons I have used a Nagley transplanter, operated by three men and a good, steady team. With one man or boy to follow and set his foot on every plant and another to get the plants in shape for the two droppers, we plant easily four acres per day, and we have been successful in getting a number one stand of plants every season. During a dry season it is very successful, as a barrel of water on the machine waters the plants automatically.

I suppose that most of my listeners have read catalogues of nurserymen who have described an elaborate plan for planting strawberries. Did you ever stop to think that it was a scheme to make the reader think the catalogue writer knew it all? Well, it is; and half we read in the catalogues and fruit and farm papers is the greatest nonsense. Now, I do not set myself up as a judge, but it is possible that I read as many periodicals as any one devoted to farming and fruit-growing, and I will guarantee that the most of the writers are theorists. A practical man does not have much time to write. Reading sets a man to thinking, and therein lies the benefit. Now, in planting strawberries, one man says, "Plant them thus and so."

Another says, "Be careful that you make the place to plant just this way"; and that way describes a plan that would take a regiment of men a day to plant an acre. We sail in with a team and five good workers and plant an acre in two hours. The results are the same. What is the use of making the novice believe that it is such a particular job?

I practice different methods in renewing old fields. No two seasons are alike, and hence it is not practicable to follow any set rule. I always mow the field as soon as the fruit is picked, and, if the weather is favorable, work up the paths between the rows with a 6A Clark's Cutaway harrow, removing three disks on a side, leaving three disks together on each side just the right distance apart to work two three-and-one-half-foot rows at a time. Two good horses will easily pull it and go over fifteen acres in a day. You have to use your judgment on how best to set the machine to do the best work.

If the weather is very dry after mowing the field, I do not try to do anything, and if it continues dry I just let them go and trust to luck. And I want to say that the most profitable crops I ever grew were from fields that were treated in this way. I never did a thing but mow them off once and pick the berries the next season. I know that this is not according to the best horticultural teachings, but it is so, nevertheless.

Our new fields we do not treat in that way. We plant and before night we follow with the weeder. Some growers say that this won't do, but we make the weeder work all right for us and we keep up the good work, never allowing a weed to get a start, and continue cultivation until almost October. We use the very best tools obtainable, using double-row cultivators mostly, and what single-row work is done we do with a Planet Jr. eleventeoth cultivator. As soon as the rows have set runners enough we put two straight disks on the cultivator and cut all runners.

If the plants are too thick in the rows we usually thin them in October, using a narrow hoe, cutting square across the row.

We mulch early, beginning about November 20, whether the ground is frozen or not. This applies to new fields only. Sometimes we mulch old fields but usually the leaves and litter on the ground furnish a good mulch.

I do not want it understood that I am an advocate of shiftlessness in growing strawberries, for I am not. I only give a few facts to show that we do not know it all. Weather conditions have more to do in growing a profitable crop of strawberries than all other causes put together. The man who can successfully combat all kinds of weather and change his plans at any time to suit conditions is the chap that will succeed.

Picking strawberries is another important phase of the business. Where the grower has from one to five acres it is a comparatively easy matter. But with twenty-four, thirty, or forty acres, or more, it is an entirely different thing. One foreman can usually oversee thirty or forty pickers, and the number of foremen can be regulated by the number of pickers needed.

We have sheds erected at convenient places in our fields, to which the pickers take their berries when picked, six boxes at a time, using a heavy twenty-pound basket for a packing stand.

A capable woman oversees the work at each shed, punches the tickets, and inspects the berries as they are brought in by the pickers.

This position calls for a person with good nature, tact, and firmness, and one who can talk from morning till night. Hence the possible reason a wo-

man is best in this responsible position. We find that the best pickers as a rule are women, though we had a number of men the past season who were better than the average woman and could pick more berries. Some picked as many as 270 quarts in a day, but our berries were extra good this season. It is not always an easy matter to keep pickers to the end of the season. We have always paid our pickers one and one-fourth cents per box for picking, and one-fourth of a cent per box premium if the picker picked to the end of the season. This usually keeps all the pickers that are worth keeping.

The entire success in berry-growing depends on whether or not you can sell them profitably. It is not such a difficult matter to market the product of a small field in the home market, but it is quite another thing when you have large shipments to make.

The best plan to follow in the home market is to furnish your leading grocer, allowing him to sell on commission, conferring with him frequently in regard to prices, and never selling any berries for less money yourself than is asked by the grocer. Our grocer sells three times as many berries as he did eight years ago, and at better prices.

For a number of years we have shipped more or less berries every season, but not until the past season did we ship in car lots. It is an easy matter to talk of selling on the track, but quite another thing to put in practice.

We have always supplied small towns in western Kansas and received good home market. But the past season we had more berries than this market could use, and we were compelled to ship in car lots. With only one season's experience we do not feel that we could say anything that could be of benefit.

In conclusion, we must say there is more pleasure and profit in growing strawberries than any other crop, in a small way, notwithstanding the fact that the past two seasons have not been very profitable. If you would read the catalogues of some strawberry growers, they would have you believe that they always had big crops of berries that bring top prizes, and getting plants of them will regulate your crops, your price, and everything, and you will grow wealthy. Be not deluded. If you read between the lines you will probably read, "We grow strawberry plants to sell only."

Growing strawberries for profit and growing plants for sale are two different things. My advice to the beginner is, "Go slow. Hold fast to that which is good."

MR. DIXON: Mr. Booth, what do you think of the Excelsior?

MR. BOOTH: I bought several thousand plants and put them in as good ground as I had. They grew the first year fairly well. The second year I wrote the boxmakers that I would need an extra supply, for I had an abundance of bloom. They kept growing. The foreman said: "Mr. Booth, I don't see any berries on those Excelsiors." I said: "I cannot be mistaken, for Mr. Dixon says they are all right; I have his letter here." The vines grew almost as high as this table. The foreman said, "Where are the berries?" I said, "I would like to know, too." I had a crate and a quarter of these berries that were to make me rich. Out of one and one-fourth acres of ground, on which there was not a hatful of weeds, we picked one crate.

MR. DIXON: The Excelsior will not succeed on very rich ground. The

Gandy fails sometimes. I would like to ask Mr. Holsinger if this is his experience.

Mr. HOLSINGER: My experience is that the Gandy fails all the time. We have never had much luck with Gandy.

A MEMBER: In regard to commercial fertilizers: we tried it at the rate of 400 pounds to the acre and left vacant blocks between. It was on heavy soil, and we could not see any difference between the fertilized and the unfertilized.

A MEMBER: I would not use very much stable manure on strawberries. I would use woodashes.

MR. HALE: What do you mean by "setting runners enough"?

MR. DIXON: When the row is sufficiently matted, if the plants are too thick in the rows we usually thin them in October. The way we thin them is to put all the disks on the harrow and run over the field lengthwise, and then crossing with the harrow. It tears out about three-fourths of the plants, but it will not tear them all out. You would be surprised to see how nice your field is in a few days. White clover is the worst thing you can have in a berry-field.

MR. HALE: I began my fruit operations much in the same manner as that described by Mr. Booth. I grew from ten to twenty acres a year. The first thing that interested me in a way was the remarks he made about those Excelsior plants. He said there was not a hatful of weeds in his field-not a weed in it. He said the plants were as high as the table. strawberry weeds. The worst weed the strawberry grower has to contend with is the strawberry plant. As Mr. Dixon has told you about his thinningout process, it is absolutely necessary to give the strawberries room, and the strawberry plants themselves interfere more with strawberry culture than anything else. Give the plants room; they must have room, and without room you cannot get a vigorous yield of fine berries. In one of my best fields at home now the plants are eighteen inches apart. All other plants are kept off. I have others that are allowed to grow fifteen inches wide and in rows, and then thin out with a sharp-pointed hoe. Mulch in the winter and feed them in the summer. One thing I found in my strawberry growing of late years, more essential than any others, is spraying. The red rust, or leaf-blight, attacks some varieties with a great degree of effect in our country. I have found that we should spray with Bordeaux mixture in September, a good strong mixture, 5-5-50, and again early in the spring, and again just at the close of the blooming season. I know three sprayings looks like a big thing, but it is really a simple matter. With me, and with many of our growers in the East, it is a safe insurance of doubling our crop.

MR. DIXON: Most of our varieties are not troubled with rust at all. A few of the newer varieties only are troubled with the rust, and then only in wet seasons. The Parker Earl is about the only old variety that rusts with

A MEMBER: What four varieties would you plant for commercial purposes?

MR. DIXON: August Luther (for early), Warfield, Dunlap, and Gandy.

MR. HALE: Have you fruited the Lady Garrison?

Mr. Dixon: No.

Mr. Hale: How about the Aroma?

MR. DIXON: It has not been as successful as it might have been.

A MEMBER: What is the best pollenizer?

Mr. Dixon: The Dunlap.

SECRETARY BARNES: Down at Neosho, Mo., where the Missouri State Horticultural Society held its meeting last week, they grow the Aroma almost exclusively.

MR. KENOYER: I have eight acres of strawberries that it was impossible to cultivate last year. Last year was its first year in bearing. We had rain six weeks right at the time when they should have been cultivated, so I moved them twice with a moving-machine. They are too thick to tend in rows properly. How shall I get them into rows?

MR. DIXON: I would just "let them rip."

Mr. HALE: I have seen others in the same fix. I would just scatter long lines of salt in rows, and thus make paths through.

LETTER FROM EX-SECRETARY KELSEY.

KAWANA, N. C., December 6, 1904.

William H. Barnes, Secretary Kansas State Horticultural Society:

MY DEAR SIR-Your letter asking me to prepare a paper for your thirtyeighth annual meeting, giving a synopsis of my mountain home, etc., is received. I fear that I can hardly say anything interesting or profitable to the Society. It is now almost thirty years since I came to the Blue Ridge mountains with the hope of securing better health for myself and family and a desire to renew the acquaintance of my old friends, the hills and mountains, the grand old forests and the ever beautiful perennial brooks, for which, during all of my twenty years on the Western prairies, there was ever a longing, a homesickness that I sought to cure; and if the truth were told, I suspect that many another would be found guilty of making quite as unaccountable moves and for no better reasons. I settled on a sparsely populated mountain plateau and named the place Highlands. We found a kindly disposed, intelligent people, with but few advantages of civilization. The nearest railroad station, Walhalla, was thirty miles away, and reached by an almost impassable mountain road. We were four miles from the nearest post-office, where mail was received once a week, but route connections were so arranged that it took three to four weeks to get a reply from any place twenty miles away. I laid out a town site in the woods, and with the aid of our few neighbors built a comfortable house for school and church uses, improved the old roads and made new ones, and advertised for people to come and help us build up the waste places. Our efforts brought settlers from the North, South, East, and West, who located on the vacant lands and helped to improve the country and build an attractive village, with a good school, church and society privileges, and a popular summer resort.

Sixteen years ago I removed to this section to secure better transportation facilities for our horticultural work, and have since been devoting my time largely to the location and building of improved mountain roads to develop the resources of the country. I have also been at work with my son

Harlan P. Kelsey growing and disseminating our native ernamental trees, shrubs, and plants, especially those of the southern Appalachian mountains, most of which were little known, and many of the most valuable entirely unknown to American planters until they were grown and sent out by the Highlands nursery. We now have near 100 acres devoted entirely to the cultivation of native American ornamentals. Our present location is on the Linville river, 3800 feet above tide-water, 150 miles northeast of Highlands, five miles from the Great Grandfather mountain, ten miles from the Cranberry Iron Works. We have a railroad station one and one-half miles from the nursery and nearly 100 miles of fairly good wagon road connecting the various communities and points of interest in this section, all of which have been built within the last fifteen years. There are still some large tracts of original, unbroken forest in this mountain section, where, fed by perennial springs and protected by the overshadowing foliage of ancient and venerable hemlocks and the lower, denser growth of birch, rhododendron, laurel, and the lovely azalia, or mountain honeysuckle, "and creeping shrubs of thousand dyes," the babbling brooks carry an unfailing supply of pure, beautiful water. But the lumberman is in the land and our protecting ferests are fast falling before him. We have worked and prayed for the Southern Appalachian Forest Park, hoping thereby to preserve some part of our remaining forests; but private greed and the lumber interests were opposed to the measure, and it will probably have to wait until there is no more timber worth cutting and our hill and mountain sides are so worn and washed away that they are valueless for private use.

With best wishes and regards to old friends and all members of the Kansas State Horticultural Society, Yours very truly, S. T. KELSEY.

Afternoon Session.

APPLE PICKING.

By PRESIDENT WELLHOUSE.

The secretary put me down on the program to talk to you about picking and sorting apples. During the last year we tried hard to pay our pickers by the bushel. We have heretofore hired our picking done by the day, and it has been a very unsatisfactory way. This fall we did not have a very big crop, and we wanted to do some experimenting, and I told the foreman I would like to find out just how many bushels each picker gathered. Our sacks are of uniform size and hold about half a bushel. Our foreman took a shingle and tied a pencil to it, and wrote the name of each picker on it, and when a picker got his sack full and went to the wagon to empty, the the foreman called his name and put down a mark. When the next picker came in, he did the same thing, and so on. Some of the pickers began to object. They said they had to go under the trees, or on a ladder, and could not keep up. Before we had picked two days we began to see a difference. in the pickers. Some of the men were picking more than as many again as others. We had one man who drove the team, and was with the team more than half the time, and yet he picked more apples than some of the men who were at it all the time. I never could see how we could afford to pay

them by the bushel. There is some difficulty in keeping an exact tally, but we found we could do it by the foreman calling for the picker's name when he brought a sackful, and he put his mark down. The result was he kept an exact count.

That was all right but it was a lot of trouble. One man was on the ladder and of course he could not pick as fast as the man on the ground. The man picking the down apples was complaining. We had a lot of Ben Davis apples that were of no value excepting for cider, and it did not matter whether they were on the ladder or on the ground, or from the trees, and they got them just as they pleased, and we had no trouble in paying them by the bushel. A man who picked for us at \$1.50 a day complained all the time about not getting enough wages, for by the bushel one of them made from \$2.00 to \$2.50 every day.

I think that with a few years' practice we will be able to pay by the bushel. We have uniform sacks that hold half a bushel. We have uniform boxes on the wagon that hold a bushel. To make it safe, we know how many pickers we have. In the evening the foremen reported the number of bushels each one picked that day, and it was put down in the day-book. We counted the number of loads that came in, twenty-two bushels to the load, and then compared them with the foreman's account. So, if the foreman makes a mistake, it cannot be very large or we will discover it. So that I believe we are going to be able to pay by the bushel. This trouble with the ladders and picking from the ground we think we can correct by making every man take a ladder and pick his share from the ground.

Another thing they wanted me to talk about, and that is the question of sorting. We have for the last three or four years had women to help sort. Where they do nothing but sort, on the average they will beat any man. They will sort more apples and do it better. One difficulty is they can do nothing else. They cannot handle barrels or things about the packing-house. On that account we cannot pay the women as much as we do the men. Finally, we concluded to pay the women \$1 a day and the men \$1.50. We can get more women at \$1 than we can men at \$1.75.

A MEMBER: What do you pay a bushel?

PRESIDENT WELLHOUSE: We have to govern that by the amount of fruit on the trees and the size of the fruit. We have a man who picked seventy bushels a day; another, nearly fifty bushels of Jonathans. Even for Ben Davis we have paid as high as eight cents a bushel. We do not expect to pay less than three cents per bushel; that is, where the trees are full and everything is in good shape. Missouri Pippins and Winesaps are much harder to pick than others. Ben Davis, Gano and such apples we expect to get picked at three or four cents a bushel.

A MEMBER: Do you pick everything as you go?

PRESIDENT WELLHOUSE: That depends largely on conditions. If there is a whole lot of fruit under the trees that has fallen we gather that up before picking, but if there is hardly any on the ground we take everything clean as we go, and do all the sorting in the packing-house. We sometimes gather all the apples on the trees before we commence picking those from the ground.

A MEMBER: Do you mix your fallen apples and the hand-picked apples in the same box?

PRESIDENT WELLHOUSE: Yes, we pick everything and depend on the sorters to separate them.

A MEMBER: Do you have more than one man in a tree at a time?

PRESIDENT WELLHOUSE: Yes. Every man does his work his own way. We have tried hard to get every man to do just as we told him, and it would take a man to watch each one to make him do that. They will always have their own way of doing things, and we let them have it. We always try to keep them from huddling—from several getting around one tree. We try to have the wagons keep close to the pickers. If the tree is a very full one and of good size, three or four can get around it. We hardly ever use less than four hands to the wagon. We have used as high as fifteen men in one gang.

A MEMBER: Do you use step-ladders or pointed ladders?

PRESIDENT WELLHOUSE: We use ladders that are six or eight inches wide at the top and two feet or more at the bottom, and from twelve to sixteen feet long. When apples are so high we cannot get them with a sixteen-foot ladder we instruct the men to shake them off.

A MEMBER: The time has come for using boxes for packing. I was in Colorado three months this fall, and the packing is done mostly by girls and women, and they put apples into boxes cheaper than they can into barrels.

PRESIDENT WELLHOUSE: We have always tried to sell our crop before we commenced picking. We ask the buyer to send a man to see that the packing is done according to the buyer's instructions. If they depend upon us for packing we are held responsible until they see and accept them. So it is better for us to have them send a man to inspect the packing. We pack in boxes or barrels, just as the buyer desires. We have been closely watching the packing in boxes, and I understand Mr. Yaggy says a man cannot buy his apples in barrels. My opinion is that the fruit-growers will, as soon as they learn about it, prefer the boxes. For one particular reason, when we get a heavy crop of apples the coopers begin to look wise, and, about the time the most barrels are wanted, they begin to raise the price, and it goes up and up and up, until we do not know where it will stop. We can put boxes together with unskilled labor. A woman can handle a fifty-pound box, and she cannot a barrel; a woman can do nearly everything done in a packing-house if boxes are used. I have a strong prejudice against the man who will wait until he gets me in a pinch and then run the price up on me so I cannot stand it. Our wagon platforms are about thirty-five inches high, and the boxes on them are of uniform size, twenty-two boxes to the wagonload. If a gang of men and foreman go to work we will pay by the wagonload, or by the bushel; that foreman and those men will do a deal more by the bushel than they will by the day. It is the foreman's business to see that they handle the full sacks carefully. When the pickers go to empty their sacks into boxes on the wagon the sacks are so shallow that, with ordinary care, they can be emptiod without bruising the fruit. It is just as easy to handle them carefully as to handle them roughly.

CABBAGE.

By F. P. RUDE, North Topeka.

THE SEED AND THE SEED-BED.

To succeed in raising cabbage you must have good seed, of well-established varieties, of good, strong germinating power, sown in season. For early cabbage, seed should be sown the 1st of February, in well-prepared hotbeds, which should be carefully attended to and properly aired, or the plants will grow too tall and will fall over and become crooked. Seed should be sown of early summer or early flat-head varieties the last of February; and for the medium or larger summer varieties seed can be sown the middle of March, in beds covered with muslin. The beds must be carefully aired on warm days. As soon in the spring as danger from freezing is past seed may be sown in the open ground with the seed-drill, and new seed of later varieties sown every few days until May 15. After this time, if seed is sown, it will be best to sow some of the summer varieties that will mature quicker than the late varieties.

Early cabbage does best and comes to maturity quicker on a sandy-loam soil, and the summer crops on medium loamy soil, while the late varieties do best on the heavier soils, black preferred.

THE FIELD.

Almost any good land will produce a fair crop of cabbage. But there is no crop that will give better returns from a good application of stable manure or of green manuring the previous year. Commercial fertilizers I have never tried.

In preparing the soil, fall plowing is preferred, with weeds or grass or some other green crop turned under to add humus to the soil. If not plowed in the fall, plow as early in the spring as the land can be worked, harrow thoroughly, and use a heavy drag or roller to pulverize and firm the soil. The land is now ready to be set to early cabbage.

For the summer varieties plow early, and harrow or disk the land to keep it clean and mellow until the time comes to set. Land for late cabbage should have the same treatment as for summer cabbage, except that some early crop may be taken off the land first.

Early plants in the hotbeds should have the glass taken off them ten days before they are set, and kept off unless the weather gets too cold. In this manner they will be well hardened when the time comes to set.

As soon as danger from hard freezing is past commence setting, and, if there is a continuous supply wanted for market, keep setting every few days, as the plants become large enough. From the different seed-beds first the early, then the summer and last the late varieties can be set until the last of June. After this time it is best to set only the summer varieties, as they mature quicker and are surer to make a crop than the late varieties.

CULTIVATION.

Cultivation should commence as soon after the plants are set as they can be worked, and kept up every few days, shallow cultivation preferred, unless the soil becomes hard or runs together from heavy rain. If the latter occurs, it is best to cultivate deeper, following soon after with shallow cultivation to again pulverize and firm the soil.

WORMS AND APHIS.

On this subject I have not much to say. I find that if cabbage is kept well cultivated and in a good, thrifty condition, and set in solid blocks away from corn-fields or hedges, and all weeds kept cut around the edges of the patch, cabbage-moth or millers will have no place to harbor; the worms will not bother much except around the edges of the patch. Aphis I have never been troubled with; so I know nothing about it.

Such crops as turnips, kale, cabbage and any crop that is a rank feeder and exhausts the fertility of the soil should not precede cabbage.

All vine crops, such as melons and cucumbers, or leguminous crops, such as peas and beans, would best follow cabbage.

The committee on exhibits submitted their report, and, on motion of Mr. Holsinger, the same was adopted.

The auditing committee reported that they had examined the reports of the secretary and treasurer and found the accounts correct. The report of the committee was adopted.

MR. HOLSINGER: We have, at different times, elected visiting horticulturists as honorary life members of this Society. I think we are all pleased to show them any courtesy that we can, but in the history of this Society we have never had a man here who gave us more pleasure and more instruction than Mr. J. H. Hale, of Connecticut. I, therefore, move that Mr. Hale's name be added to our list of honorary life members, and that the secretary be instructed to notify him. Motion carried unanimously.

The committee on obituary submitted its report. Adjourned sine die.

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PROCEEDINGS

OF THE KANSAS STATE HORTICULTURAL SOCIETY IN ITS TWENTY-FIRST SEMIANNUAL MEETING, AT WICHITA, KAN., JUNE 7, 8, AND 9, 1905.

FIRST DAY-Afternoon Session.

Called to order at two o'clock P. M., in the district-court room, by President Holsinger.

After prayer, the president called for reports on conditions and prospects of fruit. Replies were as follows:

REPORT OF FRUIT CONDITIONS IN THE FIRST DISTRICT.

By E. J. Holman, Trustee.

With the exception of strawberries, we have to report all fruits, large and small, from a failure to a partial crop only. We are undoubtedly still receiving the injurious effects of the winter of 1897 and 1898 on our tree fruits, with the injury resultant from the low temperature of the past winter on the trees, and the April freezes on the fruit, added. Hence, have not sufficient facts for the encouragement of horticultural enterprise that have existed in bygone years.

Some of the noticeably peculiar conditions occurring this season are the almost entire absence of leaf curl on the peach, and the seeming total disappearance of canker-worm. Very singular, and to us hard to understand, is the fact that, notwithstanding the very low temperature, twenty-two degrees below zero, many of the tenderest varieties of our budded peaches brought live buds through, and set a good many peaches, that afterwards were very much reduced by the April cold, but there are still some that promise to mature, Only one variety, the Lewis, a peach of Michigan origin, promises a crop. This was the hardiest budded peach under our notice last year. It excels many seedlings in hardiness. In apples that now promise the most fruit, we name the Duchess and Wealthy, followed probably by Jonathan.

We would estimate the crops of different fruits as follows: Apples, 20 per cent.; peaches, 1 per cent.; pears, none; plums, 40 per cent.; cherries, 30 per cent.; grapes, 70 per cent.; gooseberries, 10 per cent.; currants, 40 per cent.; strawberries, 100 per cent.; and blackberries, 50 per cent.

The planting of all fruits this spring was much below the average; that planted is doing well; for the season, though detrimental to fruit, has been exceptionally favorable for the planter.

Prices of strawberries have ruled low, running from seventy-five cents to one dollar.

The outlook for a repetition of the failure of the past eight years of

apples, and peaches especially, and the almost total failure of pears and other fruit, make us wonder when the new era of old-time yields of fair fruit profits shall again gladden the grower.

REPORT OF FRUIT CONDITIONS IN THE SECOND DISTRICT.

By E. P. DIEHL, Trustee.

The apple crop, from all observations and inquiries, does not exceed fifteen per cent. of a full crop. The general answer, upon inquiry, is: "We have no apples; perhaps sufficient only for our own use."

There are a few scattering pears. Cherries will make about forty per cent. of a crop. A few seedling peaches are left. Blackberries will make twenty per cent. of a crop. The severe winter killed raspberries, of which only only one-half of a crop is left; in some localities the crop was an entire failure; these were also injured by the severe winter. Strawberries, in some localities, will make a full crop.

Potatoes promise a full crop. Gardens are in splendid condition.

REPORT OF FRUIT CONDITIONS IN THE THIRD DISTRICT.

By F. L. KENOYER, Trustee.

The third congressional district, which I represent in the Horticultural Society, occupies the extreme southeastern part of the state, and includes the counties of Cowley, Elk, Chautauqua, Wilson, Montgomery, Neosho, Labette, Crawford, and Cherokee. Here we have the mildest climate in the state, the mercury only once reaching five degrees below zero during the past winter, and our heaviest snowfall being a half-inch. The summer of 1903 was very wet throughout, and most trees, vines and plants made a splendid growth and developed a good supply of fruit-buds and ripened their wood in perfect condition for the winter.

Strawberries, which are commencing to ripen (May 9), promise an unusually large crop, and the weather has been just right for the perfect development of the fruit. Raspberries were so badly affected by the anthracnose last year that the crop will be light. Blackberries are beginning to bloom and there will be a full crop of all varieties. Grapes are in perfect condition for a full crop of fruit. Warm weather in January and February caused the peach buds to push forward prematurely and many of them were killed by the subsequent frosts; not more than a third of a crop is setting. All varieties of cherries are loaded with fruit. Japan plums were caught, as usual, by frosts, but native sorts are O. K. Apples and pears are setting full of fruit, and with proper spraying should yield a good crop.

Taken as a whole, the prospect for a fruit crop was never better than at the present time.

REPORT OF FRUIT CONDITIONS IN THE FIFTH DISTRICT.

By WILLIAM CUTTER, Trustee.

Fruit-trees, except the peach, bloomed early and profusely. No dashing rains, no high winds, came to prevent a good "set," and there were but few frosty nights; yet the "set" is poor.

Apples, pears and cherries promise a scanty quarter of a crop; so poor, indeed, was the prospect, that no spraying was done. There are no peaches or apricots. Of plums there is a half crop. Snyder blackberries and all raspberries promise a full crop. Strawberries will make a big crop.

My theory is that trees and buds were so weakened by the cold winter that they lacked vitality to set the fruit. Many trees are damaged.

REPORT OF FRUIT CONDITIONS IN THE SIXTH DISTRICT. By J. J. ALBXANDER, Trustee.

My report will necessarily have to be somewhat local, for the sixth district is too big to obtain a full report; but I will report as best I can.

The peach buds were almost all winter-killed, the weather being severely cold, temperature falling to twenty-seven degrees below zero; yet we will have some peaches in favored localities, though not more than ten per cent. of a crop. Cherries are better, but only one-third to one-half crop. Plums, I think, will make a full crop; we have had no curculio this year, and the blooming came very late, except on the Japan varieties. Apples and crabs are very full at this time and promise an abundant harvest. I believe, from present prospects, that we will have the best crop of both apples and crabs ever grown in our part of the state. No insects for two years, and no canker-worm for three years, have troubled us. Small fruit is all that could be asked; strawberries, just ripening, are very fine. Grapes are setting well and promise a good crop.

The spring has been very wet, cold, and backward, which makes everything late, but now the weather is becoming warmer everything is making a fine, vigorous, rapid and healthy growth.

REPORT OF FRUIT CONDITIONS IN THE SEVENTH DISTRICT. By Gro. A. BLAIR, Trustee.

We will have to report a smaller yield of fruits this season than we have had for several years past. The intense cold of the past winter, the cold spring weather, and frosts, with severe winds, all probably contributed to the discouraging condition.

Berries are an exception. Strawberries, reported a full crop; raspberries, a good crop; blackberries, a short crop, and, in some varieties, a total failure, the cause being winter-killing.

Fruit-trees, excepting peaches and apricots, blossomed luxuriantly and profusely, but the per cent. of fruit is small. My report on fruit is: Peaches, none; apricots, none; cherries, 20 per cent.; plums, 33½ per cent.; pears, 5 per cent.; apples, 33½ to 40 per cent.; grapes, 10 per cent., many vines winter-killed. Peach trees were severely injured and some killed by the winter freeze.

The president appointed the necessary committees.

PRESIDENT HOLSINGER: The American Pomological Society will hold its biennial meeting at Kansas City, Mo., in August. If you are interested in horticulture, this will be an opportunity of your lifetime. You will come in contact with the ablest and best-informed men in the country. Burbank, Bailey and other eminent men will be there, and it will be worth any man's time to go. It is due to the work of our secretary, Mr. Barnes. He worked it up, and I don't think the American Pomological Society would be meeting in the Middle West but for his efforts.

Evening Session.

WELCOME TO HORTICULTURISTS.

By FINLEY Ross, Mayor.

Mr. Chairman, Members of the Kansas State Horticultural Society: In behalf of my fellow citizens, I extend to you the most hearty welcome to our city. I have had the pleasure often to welcome to this city bodies of men, but this is the first time I have had the pleasure to greet and welcome so distinguished a body of horticulturists. To my mind horticulture is an important factor to this city; for by your knowledge you assist us in making everything more beautiful. I understand that Kansas stands foremost in this line, which is caused, more than likely, by the vim and vigor of the horticulturists. We are pleased that you have called upon us in your semiannual session; and we will be pleased if you will, during your stay in the city, visit our different institutions. There are many reasons why we are so proud of our city and its rapid development; and we look to the future with confidence and satisfaction. We invite you to go through our city and visit our parks, which are the most expensive in the state. I think you will agree with me that Wichita is fair, and where peace, plenty and happiness are to be found. I trust your business done will be profitable, and when you return home you will take with you pleasant memories of Wichita and her people.

WELCOME TO THE STATE HORTICULTURAL SOCIETY. By JOHN DAVIS.

Mr. Chairman and Members of the Kansas State Horticultural Society: This is rather unexpected for me. Nevertheless, I take a great deal of pleasure in appearing before you this evening and extending to you, as members of the state organization, the entire freedom of the city. As I have seen the county develop, in all its magnificence, it has really been surprising to my mind and many persons who have been residents in this part. I have watched the Arkansas river sand-hills and sand-piles, and have seen them grow great orchards. It has all been due to the horticulturists and the men and women of intelligence. Ladies and gentlemen, again let me thank you for this invaluable meeting, and again wish that your visit in this city will be one of benefit and entertainment. Thank you.

RESPONSE.

By PRESIDENT HOLSINGER.

Ladies and Gentlemen: It is with diffidence that I respond to the beautiful invitation that we have to accept the hospitalities of your city. I am not a speaker. My life has been spent in the fields, in contact with the fruits and flowers.

This Society met in this city June 29 and 30, 1886. This city was then a boom town. The enthusiasm awakened by this Society is everywhere apparent. The magnificent orchards surrounding your city were created since

that time. We sincerely hope that another cycle of nineteen years may not pass without a meeting here of this Horticultural Society, but that they may be of frequent occurrence, and that your local society may be enthused. How much of the prosperity of your city is directly attributable to our visit of nineteen years ago we will not even attempt to conjecture; but the fact remains that the major part of the apples, and in fact about all the apples, shown by your townsman, Mr. Schell, at the St. Louis exposition were from the orchards of Mr. Thomas, who contributed 550 bushels of the finest apples shown. The advertising Kansas received from the pittance given to horticulture was doubtless of more consequence, of more value, than the large amounts given to other avenues of industry or trade. Our State Society is only thirty-eight years of age, and we do not hesitate to say that much of its prosperity, and yours, is due to the patient industry of our horticulturists.

The transition of this neighborhood is most remarkable. Less than half a century ago, when I first visited this vicinity, the bison were numberless; these then prairies were a mass of black, moving, restless buffalo. The wolf and the elk were also in evidence. Cottonwood Falls was then on the confines of settlement. A few straggling log houses constituted the settlement at that time.

How changed! Wichita, "the gem of the prairies," has transplanted the wilderness with a hustling, business energy almost unparalleled, in so brief a time, throughout the world. Thus we find the heart of the American desert has changed into not only fruitful fields, gardens, and orchards, but marts of industry, teeming with an industrious civilization of energetic humanity. When I first saw this country there was, possibly, no white citizen within the borders of Sedgwick county. The Comanche Indian occasionally made incursions into this vicinity. It was with some degree of trepidation that we undertook that visit, least we should fall a prey to some one of the nomadic tribes that roamed these plains.

Although great the material prosperity of this section, still greater are the intellectual achievements of the people; schools have been instituted; churches rear their steeples, piercing the very clouds; colleges established, teaching the arts and sciences, with literature encouraged as never before in a community so young. What is the cause of all this transformation? The class of men who first settled in Kansas were in no wise mercenary; they were a class of young manhood who, wishing to better their fortunes, sought homes on these beautiful prairies, where they could carve out their own futures and worship God according to the dictates of their own consciences. Ah, more! They were like the Puritans of old, who crossed

". . . the prairie as of old Our fathers crossed the sea, To make the West as they the East The homestead of the free."

How well they accomplished this the world attests. It was not without a struggle that this greatness is ours—a border war for supremacy; civil war, which threatened the existence of the government; droughts, cyclones, grasshoppers, chinch-bugs, et al.

Yet Kansas survived them all; with her watchword of "Ad astra per aspera," her course is ever onward and upward.

Fifty years ago these streams were fringed with the cottonwood, which was the pioneer, resisting heat, drought, and storms, furnishing food and material for the beaver which abounded in these streams—I saw trees more than two feet in diameter cut by them just below your city.

The flora of this section was legion; of fruit, the plum, grape, mulberry and wild cherry were the assurances that our better-improved and cultivated varieties might succeed when the soil was once reduced to cultivation; yet the wise ones shook their heads doubtingly. "The prairie is not adapted to

their growth," said they.

Behold the transformation—all varieties of fruits blooming and bearing; luscious fruits, unsurpassed in beauty and excellence by any country under the sun. Eastern Kansas was first settled and planted to fruits; for a time we were content, claiming that the weather conditions of western Kausas were unsuited to fruit development by reason of "alkali and drought." Steadily but surely the march of fruits have been westernward, not only vying with us of the eastern part of the state, but outstripping us in the race.

At the recent Louisiana Purchase Exposition, in St. Louis, the major portion of our apples were from the western portion of our state, and were unsurpassed. The peach, too, seems at home on these prairies, being as certain to respond in bountiful crops as any section devoted to this fruit. The small fruits flourish, as do other varieties of fruits.

This is indeed a wonderful country, with wonderful possibilities. We, therefore, come to you not only to encourage you, but to learn of you and receive inspiration. We feel that we are fortunate in this hearty welcome received. We hope for an interesting meeting and a good time, which we can have only by a good attendance and a freedom on your part by a participation in our deliberations.

Again we thank you; on behalf of the Kansas State Horticultural Society, we thank you.

WHO ARE HORTICULTURISTS?

By J. D. Houston.

Ladies and Gentlemen: I will have to explain before I read. I want to say beforehand that I have my own views as to horticulture and horticulturists. I believe the horticulturists to be more necessary to the country than a navy, and the man behind the apple tree far greater than the man behind the gun. You must take my own view as to the horticulturists. It may not be practical, but it is the way it seems to me. I will read, if I can, what little I have written on this subject.

Every leaf and flower and blade of grass has its life and aspiration, and each in its way is ever reaching out and striving for a higher development. The vine climbs upward to the sunlight, and the house plant leans wistfully toward the window. When the environment renders it necessary, the various members of the plant kingdom display almost human ingenuity in crushing out opposition and overcoming difficulties in the struggle for existence; they seem to be ever clamoring for assistance; but some of us have "ears to hear and hear not, and eyes to see and see not." The horticulturist is he who hears the silent appeal of this multitude of suppliants, and

understands their language, and to him alone they unfold their secrets and yield up their treasures.

Therefore, he who so tills the earth and deals with this plant life as to produce the best results in the best methods, whether the products are objects of utility or beauty, is the true horticulturist. In partnership with the sunshine and the rain and the soil, he patiently labors and builds.

It is he who loves the smell of the fresh soil, when the garden is plowed; who will bend down to pull a weed that crowds close to a struggling plant. and understands that he has done more than if he had destroyed a dozen weeds a foot away; who plants the shade-tree for succeeding generations, although knowing at the time that he will never sit under its sheltering boughs; who takes time to think and know that shade in the yard had better be from an apple tree than from a fruitless cottonwood, or fruitless anything else; who can feel and know the difference between pruning intelligently and butchering in ignorance; who has the fine discernment that distinguishes between burying a plant and setting it out to grow-between cultivating it on one hand and covering its leaves and smothering its life on the other; who has had the patience and intelligence to properly judge and select the most promising plant for future training and development for the purpose in view, with the same accuracy with which one selects certain of his children to be educated for a chosen profession; communes with, cajoles and caresses, breeds and cross-breeds and embellishes, until finally, after many seasons or decades, the luscious fruit or fabulous flower that existed only in fancy is realized in fact.

Upon the barren stems of the so-called flowers of the ancient world he has placed the variegated crowns of beauty that adorn our modern homes, and from the bitter berries and buds that were named as fruits in ancient history he has evolved the orchards of to-day. From the scanty supply of cereals and grains that gave food to the primitive man he has brought to our table a myriad of nourishing and palatable vegetables, and filled the store-houses of the world with grain, and created new food for the sustenance of man.

By the study of horticulture the man himself is improved as much as the flowers he tends. The ascent of the "man with the hoe" to the "master of the manor" has become an accomplished fact.

A horticulturist wrote those dear old lines:

"Woodman, spare that tree;
Touch not a single bough;
In youth it sheltered me,
And I'll protect it now,"

Japan, we believe, is preeminently the horticultural nation of the world. She has given her name to many of the fruits and flowers of other lands; every tillable foot of this diminutive realm is industriously and intelligently cultivated. Japan, also, is innately the most polite and artistic of all the nations. Who can tell what the characteristics of this marvelous nation have to do with the science of horticulture? Who can tell how it happens that most of the illustrious men in every land have had for the environments of their early life the fields, orchards and gardens of the country?

We believe that the horticulturist should stand in the foremost rank of the benefactors of our race. To him, alone, nature opens wide her storehouses, and he becomes the dispenser of her bounties to the world. His field includes the agriculturist on the one extreme and the landscape-gardener on the other, and the beneficiaries of his work comprise the entire race of man. His science has been known from the time of the hanging gardens of Babylon, and its progress has been one of the marvels of the past half-century. He has added at will every color of the rainbow to various flowers of his own creation. From the wild flower found upon the prairies he has fashioned such fantastic stems and blooms as his imagination might suggest, and scattered in the various petals the imprisoned rays of the sun in such colors and figures as might suit his fancy best.

One can to-day order a flower or vegetable and define the character, quality, and color, as one would order a suit of clothes, and in a few seasons it will be produced as ordered.

The horticulturist is the exquisite architect of the kingdom of flowers, and in his consummate skill he has constructed fairy castles, in their plumage and blossom, with as great a precision as is used by the builder in the erection of our sky-scrapers in the cities.

Yet in the midst of these wonderful revelations and man-made evolutions in the realm of flowers, there must come to the horticulturist at last the force of the divine edict: "Thus far shalt thou go and no farther." With all his progress, he cannot tell why thistles grow on one stem and berries on another.

He cannot tell what mysterious power moves in the seed that has fallen in the ground that brings it to life and causes it to swell and burst and push its tiny leaves to the sunlight above. To him, as to all others, the problem of life in plant or man is still unsolved; and his partnership with the sunshine and the rain and the flowers is still incomplete, and he must look at last for assistance in his work to Him who gave the injunction to mankind: "Consider the lilies of the field, how they grow; they toil not, neither do they spin: and yet I say unto you that even Solomon in all his glory was not arrayed like one of these."

DO LAWNS AND ORNAMENTALS PAY?

By GEO. W. TINCHER, Topeka.

There can be but one answer to the above question, and that answer is Yes. They give so many returns to their owners that it would be hard to tell in which way they pay the most.

Lawns and ornamentals surrounding a home are a necessity. I feel sorry for the residence owners in a large city, where the value of land is so great that it is impossible to have any room for grass, flowers, trees, or shrubs. In the smaller cities and country, where land is not so high in value, every home ground should be well supplied with ornamentals. This is illustrated by the large sums of money annually appropriated by cities to maintain a public-park system, where their people can get a breath of fresh air and mingle with God's best friends, the trees.

The unseen power of nature has been more than generous in supplying the land and lawis with ornamentals. One season without grass would cause a famine in the land; the destruction of all our timber ornamentals would make the country desolate and unproductive. We should ever strive to replace the lawns and ornamentals that we consume for our support. He

who plants a tree and protects it in youth is a benefactor to mankind. I never let a season pass but what I plant something that may be a benefit to some one in the years to come. In the way of ornamentals, we have the trees, shrubs, vines, roses, perennials and annuals that will surely supply the wants of mankind.

I do not believe one million dollars would buy the shade-trees in the city of Topeka; yet fully ene-half of them should be removed at once, to give the remaining ones an opportunity to develep. It would pay the property-owners well to do this, but the average planter is loath to cut down a tree when once it is growing. A notable illustration on this point was the removal of three-fourths of the trees from our state capitol square some ten years ago; the man that ordered this done was criticized by man and the local press severely. The result following this wholesale thinning has demonstrated that it paid, and paid well, for to-day we have some of the best individual specimens of trees growing in capitol square to be found in the state.

One of the reasons why lawns and ornamentals do not pay is because of the lack of judgment and not being able to look into the future. A row of White elms planted fifteen or twenty feet apart look very small when they are first planted, but at twenty years of age they should be thirty or forty feet apart. With plenty of room for development the elm is an ideal lawn and street tree; otherwise it becomes ill shaped and is anything but a beautiful tree. Large-growing trees, like the cottonwood and soft maple, should not be planted on small city lots; they grow too large and require more room than the small lot can afford to give.

It makes my heart ache to see people that may have too many trees growing adopt the practice of pollarding, which is used principally on cottonwood and soft maple. If they are too close, cut a portion of them down, but do not adopt the hideous method of pollarding. I have a friend who is seven feet tall; I doubt if his looks would be improved by cutting one foot from his limbs. However, many people think they can improve large-growing trees by this method. It is a mistake; they cannot do it. The only deciduous tree that can be treated in this way and recover is the elm. The common Green ash is a tree that has been neglected entirely too much. It does not require so much room as the elm, and will thrive in all kinds of soil; the foliage takes on such a deep shade of green early in spring that the tree becomes distinguished during the entire season. Another neglected tree is the Honey-locust; by giving this tree plenty of room we can find nothing so pleasing to the eye as its beautiful, delicate foliage suspended on long slender branches. The native oaks and Hard maple should receive more attention than they do; they are hardy and will pay any one to spend time on them. Another beautiful small tree just coming into prominence is the catalpa (bungeii). In my judgment, this is the most beautiful ornamental that has been introduced during the last twenty-five years. It was a beautiful thought in planting them on both sides of the east and west drives to the capitol building; in ten years' time they will be simply beautiful. Tea's weeping mulberry is another beautiful thing; we should find room for more of them than we do; it is better adapted to Kansas than any of the other weeping sorts. The Flowering crab is fast becoming a standard ornamental; it will pay, because of its hardiness and its great beauty when in full flower.

We have many other small trees that can be grown, but they are not so hardy as the above.

Under the head of ornamentals come the shrubs, reses, climbers, and perennials. They can be used in so many ways that it would be a difficult problem to suggest a definite plan for their arrangement. They can be used on the border of large or small grounds and adjoining buildings to a good advantage.

Without going into detail, I will name the leading shrub families adapted to this locality: Magnolia, berberry, sumach, plum, rose, apple, hydrangea, dogwood, honeysuckle, huckleberry, heath, olive, hazelnut, willow, saxifrage; by adding a list of herbaceous perennials, including the iris, peonies, and other well-known sorts, will give a list sufficient for any one to make selections adapted to any size grounds.

The evergreens can be used sparingly. The leading sorts for Kansas are Austrian pine, Red cedar, White and Blue spruce. There are many others that will grow and do well, but their success requires more care and attention than the average planter will want to give. The evergreens will stand pruning much better than the deciduous trees; in fact, it is a benefit to cut back all evergreens; it makes them grow more stocky and compact. The best time to trim the pines is in August. At each amputation a cluster of buds will form before cold weather, with the result that the following season the growth will be uniform. I have treated Scotch and Austrian pine in this manner with beneficial results. With the spruces and cedars I prefer the spring months, for the reason that the growth must become hardened by the time frost comes, and they should not be pruned later than May or June.

It is a mistaken idea that many people have about pruning evergreens. A good plan for pruning is the following: Prune deciduous trees up from the bottom, and on the north side of the tree; while for evergreens trim from the top down; this will strengthen the growth of the lower limbs, and cause the tree to grow in better form.

I will enumerate the trees for a large place, naming them as to preference: White elm, Green ash, Red, White and Burr oak, Hard maple, Honey-locust, catalpa (bungeii), Tea's Weeping mulberry, Flowering crab, Kentucky coffee-tree, box-elder, linden, sycamore, catalpa (speciosa), Black walnut, Wild Black cherry, Osage orange, hackberry, Austrian pine, Red cedar, White spruce, White birch, Soft maple, Russian mulberry, cottonwood, Black locust, Lombardy poplar, ailanthus, willow, Mountain ash, dogwood, papaw. For a small city lot I would confine myself to a fewer number of trees that would not require so much room for development.

With the above list of trees and a judicious mixture of shrubs any reasonable piece of ground can be made beautiful, and the beauty they give to the world will pay any man or woman to plant ornamentals and maintain a well-kept lawn.

It would pay the cattlemen of Kansas to plant ornamentals around their feed-lots, for protection in winter from the cold northwest storms. We have many trees suitable for such planting.

I firmly believe in the practice of planting trees, and expect to keep the habit up so long as I shall live. I believe that the trees we plant to-day will be living monuments to our memory 50 or 100 years hence.

QUESTION BOX.

QUES. How can we protect our shade-trees along the highways from the depredations of the telegraph and the telephone companies?

MAJOR HOLSINGER: Is there any law by which to prevent the destruction of these trees?

A MEMBER: I would call on Mr. Houston for the answer. He is one of the principal lawyers of Wichita, and no doubt he could give us a great deal of information.

Mr. Houston: Mr. Chairman, ladies and gentlemen—The franchise given to a telephone company carries with it the law to make a reasonable use of the highway, but it does not give it the right to destroy. If it can, then I say that every farmer along every country road in the state should stand for his rights and protect them. The law has been declared in the courts. They have no right to go into public roads and destroy. Why have they any more right to go into the public highway and do that than an individual?

A MEMBER: In our little city we have granted franchises in the last two years to two different railroad companies and an electric-light plant. We specify that they are not to destroy any shade-trees. Mr. Houston will probably recall that the supreme court gave just such a decision as he refers to; but I think it has been reversed: that a road was a public highway, and that a telegraph or telephone was a necessary means of communication along such highway, and no restrictions were necessary to use that road as a means of communication. As I understand it, they have, under that decision, the right to string wires along the public highway as a public means of communication; but, as he says, they ought to be restrained from cutting away the trees. Otherwise, the telegraph line would cost more than it could possibly pay to build it, as they would then have to use conduits.

Mr. Houston: The first decision as to whether or not they had the right. The court decided that they could not go into the highway at all; afterwards they reversed that decision. But there was never a case in any civilized nation of the world where a telegraph company had a right to go into the country and commit a nuisance by destroying trees. I think there was a law enacted in the last legislature that no telegraph or telephone company had any right whatever to destroy trees or string wires until they got permission from the property-owner. The owners contend that the trees on the parking are theirs, and not the property of the city,

SECRETARY BARNES: I have a neighbor that successfully stood out against a telephone company. Last winter the telephone company came along with the very largest-sized poles they use; they came to this man's property and began their work, and he stopped them right there. He said to me, "I simply told them not to do it." They began, and told him all about the law they had on their side. And he said, "All right, we will have a lawsuit." The result of the matter was that the poles were put on the epposite side of the way. Of course, every one else can do the same. If we sail stand up against them we can have our own way, and can protect our trees.

SECOND DAY-Morning Session.

THURSDAY, June 8.

The meeting was called to order by Major Holsinger. Prayer by Reverend King.

REPORT ON FORESTRY. By Judge J. L. Pelton, Sharon.

I have about fifteen acres planted to forest-trees. The soil is sandy and from eight to twelve feet to water. The varieties which do the best are cottonwood, Black locust, Honey-locust, common catalpa, Black walnut, White ash, Soft maple, and elm.

I have a few White walnut or butternut, wild cherry, ailanthus, pecan, hickory, Sweet chestnut, basswood or linden, tulip or Yellow poplar, Chestnut oak, Pin oak, persimmon, Coffee-bean, Sugar maple, Osage orange, Wisconsin Yellow cottonwood, Japan catalpa, Carolina poplar, and a few varieties of willows, etc.

For future use I would recommend White ash and Black walnut. They grow readily in this soil and climate, and, although somewhat slow in making large trees, they add greatly to the value of a forest because of their future usefulness for lumber. For present use my cottonwood is most valuable for fuel, and my common catalpa, Russian mulberry and Black locust are valuable for fence-posts.

I have resided on my place twenty-five years and have sold more fuel and fence-posts than it has cost to plant and care for my forest.

The ailanthus is easy to grow here in the Sharon valley and makes a beautiful tree in a few years, but I would not recommend planting it largely, as I am not sure of its usefulness for fuel or lumber. The wood is soft, like basswood, and it spreads and multiplies itself readily by the roots sprouting up and forming more trees, similarly to the Black locust.

I find forestry and fruit-raising a very pleasant occupation, and, with many trees north and some trees east and west of my house, the storms of winter are much less severe than when I settled here by this little creek on the open prairie twenty-five years ago. At my age (seventy) I still continue every spring to plant a few fruit- and forest-trees.

In the early spring, about the 1st of March, my bees begin to gather honey and pollen from the soft maples while they are in bloom; then follow the fruit-trees, elms, willows, and Black locust, with almost a continuous succession, until alfalfa blooms.

Twenty years ago bees did not gather enough honey here to live on. I kept a few bees and was obliged to feed them; but as the trees became more numerous and got larger and yielded more honey, bees did better, until now they make some surplus honey and are more profitable. I have a fancy for apiculture as well as forestry.

Many varieties of trees I plant yield honey, including all the fruit-trees, especially the apple.

MAJOR HOLSINGER: Are there any remarks on the subject just read?

It seems to me that the ailanthus is a very worthless tree. I cannot see what it is good for. Has anybody had any experience with it?

MR. ALEXANDER: I have not had much experience with the ailanthus tree, but the Black locust seems to be a pretty good tree up to the time it gets to be a tree, and then the beetles come along and eat it up. I think the Black locust tree is about the most worthless tree we have, but the Honey-locust is all right.

MR. BARNES: The first tree that I have any recollection of is the peach tree; the next tree that entered my life is the ailanthus. The ailanthus is an offensive tree when in bloom, and I don't know whether it has any practical value. Down at Farlington I saw forty acres in ailanthus. At the time I visited them they seemed to be dying. I don't know the reason. Out in Pawnee county, Mr. S. S. Dickinson showed me some ailanthus trees that were immense. He said that it was a wonderful tree to grow, but that it should be cut down at about four or five years of age and a new sprout started. The borers get after the Black locust. It makes a rapid growth after a while, and if you attend to it until it gets a good start the borers can't handle it and it will do very well. I have a sample of catalpa at the effice that grew fifteen or sixteen feet high in one year.

E. P. DIEHL: I have had a lot of experience with both the locust and the ailanthus. I have seen a good many of those ailanthus. They make good shade-trees. I was driving along one day when my neighbor said: "I wish I could get hold of the man that introduced that tree into the country." I said, "Why?" And he said, "Because it is not a good tree, and it spreads everywhere." I said: "Why should you abuse a tree that God has given us and which is mentioned in the Bible?" The locust was always a favorite tree with me. Even when I was a boy I liked it. A few years ago I was visiting my old home and saw locust trees two and three feet in diameter, and it was very gratifying to me to see those old trees I liked so well. It is the most durable tree that can be grown. It is as tough and as hard as lignum-vitæ.

MR. ROBISON: I would say that I have been very familiar with the ailanthus for more than fifty years. When I first came to this state I saw those trees large enough to hold the hinges of gates; and that is the only use I could ever find for them. I planted some 60 or 100 of the ailanthus on the banks of the Whitewater, and they grew and grew, and have outgrown everything there ever since. I believe that it is better than the sunflower. Since I have been in the Whitewater valley I have planted 50,000 Black locusts. I cleaned the ground off and planted Black locust, and they have done remarkably well. I have trees there now that are thirteen years old. My habit of planting is to buy one-year-old trees and shorten the roots, and shorten the tops to within two or three feet of the ground level. Plant them about twelve feet apart. Frequently they will grow four, five or six feet the first year. At the end of the first year I cut them off near the ground level. The trees now are twelve years old, and some are at least sixty feet high and eight to ten inches through, making good telephone poles; some use them for that. Until the last six or seven years we didn't have any borers; but then they came and swarmed on the trees like chinch-bugs. They injured them some but didn't destroy them. They are big enough at three years of age to use for fence-posts. But in examining the trees in the

last two years I have found none of the borers. They will attack one-year-old shoots and clean them up, but the two-year-old trees the borers will not hurt.

But it seems to me that these discussions should be confined to the trees that we should plant, and not the trees we should not. I think the Black locust is the best tree to plant. It will grow everywhere but on wet ground. The borers do not destroy fence-posts of Black locust, if stripped of the bark. Now, it is doubtful in my mind to-day whether Black locust is the most valuable. It lies between that and the catalpa. The catalpa is a slow-growing tree. The locust is the larger all the time. I saw 800 acres in catalpa, all growing nicely. Where any grass will grow the catalpa tree will thrive. In low places catalpa will not grow so well. I venture to say that the sand-hills with the catalpa on them would be worth more than the wheat that would grow on them.

A man told me that there had been shipped seventeen car-loads of hedge posts out of the little town of Benton in one winter, and he believed they could keep that up for some years to come, and then let them grow again.

The Osage orange is the most durable wood known. There is no wood nearly as durable for fence-posts. However, they will not grow as fast as the catalpa. I think all of this sandy land along the Arkansas valley can be used for raising catalpas; the best of it can be bought for eight or ten dollars an acre.

In these sandy hills the roots of apple and other trees easily penetrate; they seem to go down to the sheet water. While the corn-fields on gumbo lands were literally burning up, the corn-fields on those sandy lands were bright and growing. I know from experience. The first crop I raised was on that kind of land twenty-six years ago. Each kind of land has its own best use.

Now to, get back on the subject of planting. When I planted my trees I planted the Black locust and the cottonwood. I planted some White ash, too. These make wood that will split easily. The White ash has grown very nicely with me. We have another tree that is thriving—the European poplar. Its habits are something like the cottonwood. Trim it up and take every sprout off. The Russian mulberry is varied in its habits. The coffeebean tree makes a pretty rapid growth, but it grows well only on good land. The hackberry is a very nice growing tree. The Honey-locust makes a very beautiful growth with a little care. Even with the Honey-locust there is much to be done in the way of selecting, so that there will not be so many thorns.

Mr. DIEHL: I just want to say that I have made some investigation and I find that the wood of the catalpa (speciosa) is susceptible of a very fine finish.

MR. ALEXANDER: The suggestions of the gentlemen are all right in a way, but when we want to plant a shade-tree we want something that will grow quickly and is beautiful when grown. Why don't you plant the Carolina poplar? We want something for shade around our homes. And we want a clean tree. Now the Carolina poplar on the table-lands is one of the fastest growers we have. We have Carolina poplars seven years old fifteen to eighteen inches through. The elms are all right. They are the nicest trees we have. But, taking all in all, I would advise planting Carolina poplars.

MR. ROBISON: I know of no way to get a tree quickly as well as to go to the nursery or forest and take one that is already grown. All trees can be moved very easily, and within three years we have not a sapling, but a tree. I know that the trees that are transplanted are just as healthy as any we have. It is the economical way—to take a tree that is already grown and move it, and it grows right on. Some years ago a neighbor of mine came to me and wanted to know if he could get any tree that would grow. He planted en his place Carolina poplars, and now he has a magnificent lot of trees.

MAJOR HOLSINGER: At Kansas City I saw a number of trees that were as much as eight or ten inches in diameter when planted; and last spring they were in full vigor of health. Those who attended the St. Louis exposition will remember that all the shade-trees used were large, transplanted trees.

Mr. Robison: A few years ago I was up in Lincoln park in Chicago and saw them bringing trees that took two cars to carry one; and ninety-five per cent. of them were eighteen or twenty inches in diameter. It cost \$100 or more to move each one. But a tree of my size will not cost over fifty cents. I don't want to say anything against your Carolina poplar, because I think them very nice-trees, but some will not do very well in this country—they do n't last.

MAJOR HOLSINGER: I know of no subject that is of more importance to the horticulturist than tree-planting. When I saw this country years ago, the only trees I saw were cottonwoods and elms along the river. Now, we find trees in variety growing everywhere. We thought it impossible to grow trees here. Why, this land around Wichita, at that time I would not have given fifteen cents a quarter for it. And look at it now, after it was found to be adapted to growing trees.

MR. ALEXANDER: I want to stand by my trees. When I came to Wichita thirty-five years ago, there was not a tree or sprout here. To-day, when I came through the town, I saw most beautiful trees here; not one was of the species that you want us to plant. I believe in standing by the ones we know.

MR. ROBISON: About the Cut-leaf maple. It is not one that has been invented; it was picked from among the soft maples along the Ohio. It is not so weeping but that it will grow very high.

MR. DIEHL: I am a great admirer of the elm for home adornment. But the catalpa (speciosa) is a favorite of mine on account of the bloom. I think the catalpa (speciosa) should be recognized as the leading tree of the country.

MAJOR HOLSINGER: This discussion on trees has been a most interesting one. We will now take up berry-growing in the valley of the Arkansas. I want first to call your attention to the berries that are being exhibited. They were sent here by one of the largest berry-growers in the state of Kansas, F. W. Dixon, Holton. These berries were shipped in good condition. Look at them now, bruised and banged around by the agents, and brought to us in this awful shape. We suffer all the loss and the express company gets all the gain. These berries have come in such condition that, as a consequence, they must be consumed right away. I hope the reporters

will make this strong. They can't make it too strong. Now, in Kansas City, I saw at one time bushels of raspberries, all piled up. And the men were scraping them up with their hands and crating them and sending them out in that style. Colonel Robison is a railroad commissioner, and the ene to deal with railroads. It is outrageous the way the express companies treat us, and something must be done.

MR. ROBISON: When were those berries shipped?

MAJOR HOLSINGER: Those berries were undoubtedly shipped yesterday, though I have no way of knowing. But the boxes are broken, and it shows that they were jammed.

MR. ROBISON: That shows that the berries came along a route where the agents were unaccustomed to handling them. The only sure way to ship berries is to grow them in large enough quantities to make car-load lots.

MR. COOLEY: We have never been very large berry-growers at any time. We have endeavored, however, to be growers of large berries. I don't think there is any profit in growing berries and trusting them to the express companies and the commission firms. Mr. Robison says that if the berries were shipped in car-load lots they would be all right. I have seen berries come in car-load lots, and I have seen the crates broken open. I made a complaint to the agent once, and he said: "We will look it up and see if we can find out who it was that broke the crate open." But, of course, it was not worth while.

BERRY-GROWING IN THE ARKANSAS VALLEY.

By E. H. COOLEY, of Wichita.

As the strawberry is the greatest berry known to civilization, and its cultivation and use far exceed that of any other berry, we will consider it the most important part of our paper.

In starting a field of strawberries in this valley, the first thing to be taken into consideration is soil and location. Any soil that will grow forty or fifty bushels of corn per acre is rich enough. We have found a loose, sandy loam underlaid with a tight clay subsoil to be the best. The location is of miner importance, but if we could have our choice, we would choose an eastern slope, as the ground would not get so greatly heated from the afternoon sun. In preparing the soil, some cultivated crop should be grown the year before, and all weeds kept down. In preparing the ground, plow from four to six inches deep, as soon as frost is out of the ground in the spring; harrow until the ground is perfectly solid and compact. The last time going over use a drag or float, leaving the ground perfectly level.

We now grow most of our plants for setting. We used to order our plants from plant-growers, but we always found when we were ready to set we had no plants to set. When a plant-grower gets out his catalogue he advises to order early, but the man who waits until the last moment and then sends in a rush order is the first served. So we have adopted this plan: In ordering, we get our ground ready, and then send in a rush order, enclose a stamp, and make the statement that if they cannot fill by a certain date to return immediately. We almost invariably finish planting by the 20th of March, and get a perfect stand, very often not losing half a

dezen plants on an acre. We do not use the very large plants for setting, preferring plants of medium size; and plants grown by irrigation we consider of no value, unless you intend to irrigate, as we consider them over-stimulated and weak.

Cultivation should commence as soon as planting is over, and should be continued after every rain during the summer and as late as October. Mulching should be done as early as growth stops and the ground is solid or frozen enough to carry a team and wagon. Straw free from grain or prairie-grass makes a good mulch. Many varieties of strawberries succeed in this valley, but we have never succeeded in getting an early variety that we consider a success. Excelsior is a good cropper, but the person that grows it is considered to have poor taste and to be working in the interest of the sugar trust.

After testing more that 150 varieties, covering an experience in berrygrowing of twelve years in this valley, we have discarded all varieties except Spendid, Warfield, Senator Dunlap, Bubach, Aroma, Bissel, and Sample. As a money-maker, Warfield leads the list. The best late variety we have ever grown is the Aroma. It is a much better cropper than Gandy, quality much better, and its season of ripening is longer, and makes a better showing in the box. Enough berries have never been grown in this valley to supply the demand. The city of Wichita alone pays out \$1000 per day for strawberries for sixty days during strawberry season. These berries can and will be grown in this valley, giving berry lovers a fresher and better-flavored berry than can be shipped in. For our main crop of berries we plant pistillates, planting only enough staminates to fertilize them. We consider pistillates to be the more profitable, making smoother berries and not so many "buttons."

GEO. HOLSINGER: I think that the man growing berries near Wichita will certainly have to use a different variety from the man in Nebraska. You will have to plant different varieties in different places to be successful. You should experiment in a small way. Try a variety three years and see whether or not it will be a success. There is only one berry that is an invariable success and that is the Warfield. We don't do much with the Sample. That is, we don't do anything with it except to have it in the nursery for people who do find it successful. Now, if you are going to plant strawberries, try a small patch, or experiment from time to time with a short row; then branch out. This is for those who are planting for home use.

MR. COOLEY: I have tried the Nick Ohmer and never had enough to feed the chickens.

GEO. HOLSINGER: If we are forgiven, we will not plant another Nick Ohmer. The William Belt has many friends for home use, but they are nice enough to do well for market.

MR. COOLEY: When the Klondike first came out I got some to plant. I had 100 plants, and we didn't pick a half a crate off of them.

MR. BARNES: Have you tried the Cardinal raspberry?

MR. COOLEY: In a small way.

MR. ROBISON: Have you ever tried the hybrids of Mr. Burbank; the cross between a dewberry and a raspberry?

MR. COOLEY: I have not had much to de with them.

GEO. HOLSINGER: We got fifty of the Phenomenal; they are not much for size, but they are making pretty good. They were such poor, measly specimens of plant life that I am surprised.

MAJOR HOLSINGER: Have you tried the dewberry?

MR. COOLEY: Yes, to some extent. Some years we succeed in growing a good crop and some years we don't. Every good crop kills the canes.

MAJOR HOLSINGER: I will ask Mr. Geo. Holsinger the method of mulching dewberries in south Missouri.

GEO. HOLSINGER: Their plan is to mulch and leave the mulch on the ground. After fruiting, mow off or burn off, and remulch again year after year.

Major Holsinger: It seems a very simple method. It seems to work down there; I don't know why it would n't work here.

MR. ROBISON: I understand our improved varieties are selected from those raised there. On the poor lands in Missouri, where you could not raise twenty bushels of corn to the acre, they grow wild. Mr. Burbank has spent a fortune, and all the money he has made in fruits, in improving them. He is credited with saying that he can raise anything you want.

MAJOR HOLSINGER: There is only one "Cæsar" in horticulture, and that is Burbank. I could always grow berries to perfection. My old Dutch neighbor could not grow berries at all; I guess he drank too much beer. But the real reason was, he did not cultivate enough. I had four men planting blackberries. I put them to work cultivating, and found that about one-third of those planted by one man did not grow because he did not follow my instructions in planting and cultivating.

GROWING FRUIT AND BEAUTIFYING OUR HOMES. By Frank Yaw.

Mr. Chairman, Ladies and Gentlemen: This is rather above my caliber; but as I stand right on practical experience, I will do the best I can. It is rather unexpected for me, too.

No other vocation can be traced back farther than fruit growing. We find all through the ancient times the principal vocation was fruit-growing, and when we follow on down to the present time we find that horticulture is depended upon just as much as agriculture. Take the fruits and flowers from our homes, and what have we? Take the home that has only a scanty supply of poor fruit and a few flowers that the wife has tried to grow in the little spare time that she would have to bring cheer and gladness to her burdened life. Take the man that plants an orchard in good shape; then if he thinks more of a row of corn than he does of a row of trees, he will never succeed in fruit-culture. If he has a greed for the almighty dollar and no time to plant flowers, he will have hundreds of acres of wheat, corn, and oats, with thousands of cattle on the hills, and yet not a shrub nor a rose to bring forth flowers to make the home look mere beautiful. No home is complete without plenty of fruit and flowers.

To make fruit-growing a success we must learn to know our trees as the

trees know us. We must learn to know their wants and give them what they need. We must learn to prune in the right time. We must learn the injurious insects, and how to destroy them at the right time. If the trees need anything, they will tell you what they want, if you learn to know them. The farmer knows his horses and cattle, and they will come at his call; but as the trees cannot move, they will nod in the morning breeze, begging you for what they need, in their season. All of this you must learn, and then put it in practice. Without practical experience no one can learn to know his trees and their wants.

We should plant more flowers, God's free gift. Plant roses, lots of them; they cost but little. Plant perennial bulbs of all kinds; plant vines and creepers. Go to the prairie and take up the beautiful wild flowers, such as the sensitive rose, etc. Plant perennial bulbs, roses and other flowering shrubs by the roadside, in front of your home, that the weary traveler who has no home may pick a bunch of nice flowers to bring joy and gladness to his tired life.

There is another side of this to be looked at. There are some people who care naught for good music or flowers. They will turn out of the traveled road just to run over the flower-bed, and pull them up, laugh, and make fun of having a flower-garden by the roadside. All these flowers by the roadside cost nothing only a little time; just a few spare minutes at a time, and it is done. There are people who will drive over a flower-garden by the roadside just because they can, as I have had practical experiences this year. The man that don't love his neighbor don't love his God; and the man that don't love God—may God have mercy on him.

MR. ROBISON: I was out to Mr. Hoover's place yesterday and saw a new pattern of disk-harrow. We found the double disk at work—actually at work, tearing up the ground and leaving it in the finest condition. The front disk was practically an ordinary one, except that there was another disk coming along just behind it, covering the furrows of the front disk, and leaving the ground practically as level as before. If you wanted to make it still more level, the harrow could be run over it, and it would be in garden tifth. I thought it was the most complete tool I ever saw; but I presume it was doing its best in that loose soil.

A MEMBER: What kind was it?

Mr. ROBISON: It was a cutaway. It was doing a finished work every time it came along; it gouged up the earth in good style. If any one has any use for one, he had better go and see it. It was doing as much work as two men could ordinarily do, with only one man.

Major Holsinger: There is another disk, a one-horse disk. My son George was riding it, testing it, and was taken up with it; he said it was the grandest tool he had ever used.

GEO. HOLSINGER: The one-horse disk will be purchased this year. And I might say further that it will cut down the labor bill a little. This disk you can extend or draw it close together. When the ground is hard in the spring it works better. When ground gets loose it is a pretty heavy pull for a horse. Even when we did not have a man to ride it, we found it pretty heavy. I like to see the dirt thrown, and turn the weeds upside down in the ground. We run twice through the raspberries and grapes, and in some

places we have to run three times; some five or six times. All together, it is a pretty good tool to have.

MR. ROBISON: This disk can be made any width. I can easily see how it can be made double. It makes a fine tool to cultivate an orchard. The last few years I have used a disk in cultivating the orchard, especially the peach orchard. I planted the very best budded peaches I could get. I planted trees eight feet apart in the row, and a single row right down the wire fence. We are actually getting quite a large crop of very fine fruit; and I find less defective fruit on that single row than if it was a solid field. I have very little trouble with the people traveling along the road taking the fruit. Of course, there is some of it taken; but let them have it. It is safe to say that if it was all shut up and signs put up everywhere to warn people, it would only add to the boys' pleasure in taking them. And I think it is the only way to do that we may have an abundance of peaches in Kansas.

MAJOR HOLSINGER: In Germany it is said you go miles and miles under cherry trees. One man said he cuts his cherry trees down on account of the birds eating the fruit. What if they do get some; we still have plenty of cherries left.

MR. ALEXANDER: I think that was a good talk of Mr. Robison's. I think it is a good plan to plant them for the public, and let them know that they are for them. Hedge in your orchard, and let the boys think they can't get them, and that is the very fruit they want. I like the idea. The children are always welcome and get anything they want at my house. We must not measure everything by dollars and cents. Another thing: when we fellows are getting old, the more youngsters we have around the nearer we are to staying young.

Afternoon Session.

NATIVE WILD FRUITS OF KANSAS.

By Col. J. R. MEAD, Wichita.

When nature fashioned the great national park which we know as Kansas, the design was a vast grazing-ground of grassy plains, river valleys, and gently rolling hills, all covered with sweet, nutritious grass, the home of more animal life than any equal area on the continent. The timber in this great park was about in proportion to a pencil mark drawn across a sheet of paper. It follows that the space devoted to "Native Wild Fruits" was quite limited. If the writer had been assigned to write an article on the "Native Wild Meats of Kansas," a voluminous and interesting paper might have been expected.

The pioneers of Kansas were strenuous men, who subsisted largely on the flesh of animals—strong food for strong men; who thought little and cared less for fruit, using it incidentally as it came their way.

The writer was one of those who paid little attention to native fruits. If we happened to camp by a plum patch loaded with ripe fruit, or a sand-hill covered with sweet sand-plums, or passed a rocky hillside on which grew bushels of the large purple currants, or vines loaded with ripe grapes, or a

red strawberry patch, we ate our fill and went our way, little thinking that this fruit, sustaining itself under hard conditions, foretold the coming of great orchards and vineyards all over the state.

In looking over the earliest explorations of Kansas, I find a great deal written of the abounding animal life and the meat supply and very little regarding the natural fruit. Occasionally some note was made, which I quote:

In 1541 the first Spanish explorer wrote: "The earth is the best for all kinds of the productions of Spain; it is very strong and black, and well watered by brooks, springs, and rivers. We found prunes like those of Spain, some of which were black; also some excellent grapes and mulberries." Another of the party said: "The land is very fertile, and favorable for the cultivation of all kinds of fruit." This particular Spaniard was undoubtedly a man of good judgment—knew a good thing when he saw it.

Again, in July, 1724, De Bourgmont, a French explorer, says: "The Kansas Indians brought us also great quantities of grapes, from which we made a good wine."

Maj. Zebulon M. Pike, who traveled the length and breadth of Kansas in the summer and fall of 1806, in his diary does not mention wild fruits, though often on short rations, and under instructions to report everything of interest to the government.

A favorite dish of the Cheyennes was wild cherries gathered in summer and pounded to a jelly, then dried, and incorporated by much manipulation with marrow and pounded meat. This formed the principal portion of a feast.

Another writer says: "All over the West were to be found wild fruits, which were an occasional resource for food when other means failed; plums, bull-berries, haws, cherries, service-berries, raspberries, blackberries, straw-berries, gooseberries, etc."

These fruits were gathered extensively by the Indians, who had effective methods of preserving them. To the hunter and trapper they were an entirely secondary means of subsistence.

The most common and widely distributed fruit in the state was plums. They were of many varieties, sizes, and qualities, some free-, others cling-stones; some growing to be almost small trees, others the sand-hill variety, a slender shrub. East of Medicine Lodge river, near the state line, there grew a lone group which bore the finest of fruit, as large as hens' eggs. Plums were used by Indians and early settlers in quantities.

Regarding this fruit I have the following letter, of date May 4, from Hon. R. M. Wright, commissioner of forestry, Dodge City, Kan., an old-time plainsman:

"MY DEAR FRIEND MEAD: Replying to yours of April 22, beg to say, in early days in this country there were two kinds of wild plums, the sand-hill plum, which grow on little dwarf bushes, some of them so diminutive that they touch the ground; these were very prolific and grew in immense bunches, and were exceedingly large, sweet, and juicy. No less prolific were the other kind, which grew on large bushes along the creeks and in low places, and were also large, sweet, and juicy. I have seen these in immense patches—acres and acres of them; indeed, so great and dense that three of my horses which were tied together strayed from our camp and got tangled up in one of those plum patches and were lost for over a week. When they were found they were not over 200 yards from camp. I have seen patches so large and plums so thick on the ground that you could have gathered several

car-loads at each patch. I have seen the ground covered to the thickness of several inches in one solid mass under the bushes of those patches—where you could scoop them up by the handfuls; and wild grapes equally as plentiful. But those times have passed. I suppose they have been eaten out by the cattle. Persimmons, have seen a few, and they were small. Walnuts were plentiful, but were very small. Papaws I have never seen. Gooseberries and currants used to be quite pleatiful, and were large and fine, but have all disappeared from our section. Black haws and Red haws are the only other wild fruit I can remember seeing in our section of the country."

In another letter he says: "I forgot to mention wild cherries, or chokecherries as we used to call them. They grew on little trees and bushes, but were not good for much. The boys used to make pies of them."

Wild grapes were the most common fruit. There are four varieties reported, and they grew in the timber along the streams of Kansas. Some were excellent as table fruit, good in pies, or dried for winter use, and made a wine some think superior to our tame varieties. Plums and mulberries were also abundant in this country. Persimmons grew abundantly in southeastern Kansas, and are a handsome bush or tree. The fruit is rich, nutritious, largely used for food, and eagerly devoured by almost every animal or bird. There are many varieties of them; some very fine and well worthy of cultivation and improvement.

Papaws are found in the southeast part of the state. Many people are fend of them. They are described as "an easily mashed fruit, three or four inches long, with a tough skin, enclosing a very liquid pulp full of seeds, and about as solid as a cream-puff when it is dead ripe."

Eklerberries were abundant, and in early Kansas history much used for pies and wine.

Twenty-five years ago wagon-loads of very large hickory-nuts were brought to Wichita from the Neosho river country east, and sold for fifty cents a bushel. I am told the trees have been cut down. Pecans formerly grew in the southern border counties, their northern limit.

Gooseberries and currants were abundant, and about equal to the tame varieties. On the 20th of May I saw them growing in Lincoln county and fifty miles westward on Paradise creek, large enough for table or market.

Acorns were largely used by Indians, in time of famine, and by deer, turkeys, and ravens; they made excellent bread, and kept turkeys as fat as butter.

EDIBLE FRUITS.

Elderberry, Sambucus canadensis Tourn.; eastern and central Kansas; common.

Persimmon, Diospyros virginiana L.; eastern border counties.

Blackberry, Rubus villosus Ait.; eastern Kansas.

Dewberry, Rubus canadensis L.; eastern Kansas; rare.

Strawberry, Fragaria virginiana Dun.; eastern and central Kansas; com-

Thorn apple, Cratægus tomentosa L.; eastern and central Kansas.

Red haw, Cratægus coccinea L.; eastern and central Kansas.

Hackberry, Celtis occidentalis L.; all over Kansas.

Service-berry, Amelanchier canadensis T. & G.; northeast Kansas; rare.

Black cherry, Prunus serotina Ehr.; eastern Kansas; frequent.

Wild plum, Prunus americana Marsh; all over Kansas.

Chickasaw plum, Prunus chicasa Mx.; sand-hills of Kansas; frequent.

Mulberry, Morus rubra L.; eastern and central Kansas; frequent.
Black haw, Viburnum prunifolium L.; some eastern counties.
Papaw, Asimina triloba Dun.; eastern and southern Kansas; frequent.
May-apple, Podophyllum peltatum L.; eastern and southern Kansas; common in woods.

Fox grape, Vitis vulpina L.; near rivers and creeks.

Summer grape, Vitis estivalis Mx.; near rivers and creeks.

River grape, Vitis riparia Mx.; near rivers and creeks.

Downy grape, Vitis cinerea Eng.; near rivers and creeks.

Walnut, Juglans nigra L.; all over Kansas; common in southern Kansas.

Pecan, Pacania olivæformis Raf.; southeastern Kansas.

Hickory-nut, Hicoria sulcata Raf.; eastern Kansas.

Burr oak, Quercus macrocarpa Mx.; eastern, northern and southern Kansas.

Chestnut oak, Quercus muhlenbergii Eng.; eastern Kansas; not common.

Dwarf Chestnut oak, Quercus prinoides Willd.; eastern Kansas; rocky hills.

Hazelnut, Corylus americana L.; eastern Kansas; in rich glades.

Gooseberry, Ribes gracile Mx.; eastern Kansas; in rich glades.

Currant, Ribes floridum L. Her.; eastern and central Kansas; rocky hill-

Ground plum, Astragalus crassicarpus Nutt.; western Kansas. Prickly-pear, Opuntia humifusa Raf.; western Kansas. Raspberry. Rubus strigosus Mx.; eastern Kansas.

sides.

MAJOR HOLSINGER: Some years ago I saw at Nevada, Mo., a seedless persimmon. It was a large fruit, over two inches in diameter, with an occasional seed. And in testing them I was careful to notice those that had seeds, and I succeeded in getting twelve seeds. I have now a half-dozen trees growing, eight or nine feet in height, that blossomed this year. They are a large, early persimmon. One kind ripens early, before frost. I am fond of persimmons. I remember when a soldier, down in Virginia, we came to a grove of persimmons. After the hardtack rations of the army, they were a delicacy. I just filled my skin with them. My method is to take the persimmons in the fall, as soon as they are grown, and hang them up in the house in baskets; they will freeze and thaw so that we have persimmons all winter.

MR. RHODES: There is a man whose farm adjoins mine who procured somewhere up in the northern part of Johnson county a variety of persimmon found growing on the bluffs of the Kaw river similar to the kind described. He got a number of them and planted a row in his orchard, and they get larger and better every year; mature and ripen early.

MR. DIEHL: I have them growing on my place, good to eat in the middle of September.

MR. Robison: The persimmons in southern Illinois have been cultivated by Mr. Reihl for nearly thirty-five years. I think them the best persimmons I ever saw. They are seedless. They have been propagating them by grafting, and have them for sale. But they are quite difficult to graft or transplant. The persimmons in southern Illinois seem to ripen in about three months. They are growing them in California and shipping them out; very large and very fine. I think good work can be done along the line of improving the persimmon, the papaw, and the pecan.

MAJOR HOLSINGER: It was my pleasure to visit Mr. Riehl. He, I con-

sider, is one of the most advanced horticulturists in the state. I saw there the persimmon grafted on the chestnut. I obtained samples of it from the tree. It seems to have solved the problem of grafting the persimmon. It is very simple. It is simply knowing how to prepare your graft and the proper time. These grafts have a milky sap which throws out buds, unless you have just the right kind. It was well worth seeing. The variety he was propagating was early. You could see them at the fair. One thing I hope nobody will take the trouble to propagate, that is, the Red haw. It is the worst thing we have to perpetuate the codling-moth.

MR. BARNES: I had about seventy-five bearing pecan trees for a good many years. But if you want to find the good pecans ask the boys. They are the ones to discover the best ones. Being at Washington a couple of years ago, I went into the Smithsonian Institution and took a look at the collection of pecans there. They had some fully two and a half inches long. I think the pecan valuable, and I think we ought to plant more of them. Edwin Snyder planted a bushel or more on his place. I saw 250 good, straight pecan trees growing from seed he planted. They were doing finely; and he says he hopes to see many nuts on his place. The pecans you get from the store will not always grow. Many are kiln-dried. The polished ones I would not try; but I think we ought to plant more pecans.

MR. ROBISON: M. F. Shellenbecker planted some persimmons, and the the seventh year after planting had fruit.

MR. JOHNSON: Why don't the farmers raise persimmons for market?

MAJOR HOLSINGER: They do. I see persimmons in Topeka.

Mr. Crow: The Ohio guild of Topeka meets once a month, and we always have persimmons.

MR. MEAD: In the last two years I have seen them on the market in Wichita. There is a farmer living seven miles south of here who is raising chestnuts successfully.

MAJOR HOLSINGER: How old are his trees?

MR. SCHELL: Mr. J. S. Page sent down to St. Louis sweet chestnuts three or four different times. They come to bearing in two or three years. His trees are eight or nine years old. He thinks them a success. I don't know how the crop is this year. Those that he sent for the Kansas exhibit at the World's Fair attracted a great deal of attention. I have some trees in the second year, and they are bearing right along. I think they have proved a success in this valley. Of course, we have not had much success with American chestnuts.

MR. BARNES: Are your trees from the seed or budded?

MR. SCHELL: They are budded and transplanted, and are thrifty. They don't grow large, like the American chestnuts.

MAJOR HOLSINGER: I have chestnut trees about twenty-three years old still in good health. The reason we get so few nuts is because the blue jay is very active. As soon as a burr opens the blue jay is sure to be there.

MR. BARNES: I picked up native chestnuts in New Jersey; and have seen just as good chestnuts here as in New Jersey. I was out to E. J. Holman's place near Leavenworth. His trees would probably measure twenty inches in diameter, and were loaded full. But he surprised me when, out looking at

the trees, he said, "Let me show you something." He took off a burr, broke it open, and there were seven chestnuts in it. I said, "You can't do it again." He reached up again and did the same. Kansas always gets ahead. He declared that it was his belief that every burr on that tree had seven chestnuts in it.

Mr. DIEHL: I have had American chestnuts growing on my place for thirty-three years. They bear almost every year.

MR. BARNES: We are not persistent enough trying to grow them. The wood is elegant. My folks were in the furniture business for years; and the wood makes fine furniture.

MAJOR HOLSINGER: That is just what I wanted to draw out. I think chestnut is one of the best woods there is.

MR. DIEHL: I have seen chestnut rails sell fifty years age in Pennsylvania for five dollars a hundred.

MR. MEAD: Have you any knowledge of the value of persimmon wood? Down in Arkansas I saw trees big enough to make house logs of.

CANKER-WORM.

J. W. Robison: I will talk on the canker-worm. I have seen the damages of the canker-worm from the North to the South. It is a worm living in its larva state about twenty-eight days. I believe it has done about as much damage as the codling-moth. This damage is on the foliage. Hatching out with the first bright days, it starts the very first warm day. It gets in the forks or any place to deposit its eggs. The first practical and general lesson I had in combating this insect was where they went to great expense in putting tar on the trees to keep them from destroying the trees. They spent as much as two or three dollars to every tree. Something near forty years ago I thought I would combat that worm. I sent to South Carolina for seven barrels of tar; warmed it so it would spread, and I spread it on about 4000 trees. I found it was quite effective as long as the tar remained sticky, but when it became dry they would crawl up over it. But we got quite a number at the foot of the trees. A hole was formed around the foot of the trees, and the moths, not being able to get over the tar, dropped back into these holes. Sometimes they were two three inches deep in the water. We threw them out away from the trees, and it was n't ten minutes until they were making for the trees again. They lay about 700 eggs. The first introduction of spray came in about that time. I sprayed the foliage and destroyed the insect. Out of 4000 trees sprayed that year there were very few that were not cleared of them, and those were standing on the very outer corners of the orchard. Of course, there could be no apples when the foliage was gone. Their time of life is so short that they don't kill the foliage entirely just stunt it. Their work is done in about ten days out of the twenty-eight, and they leave trees looking like a scorching fire had gone over them. But we have a number of good insecticides now. Use the spray about the same as for codling-moth. Many of them we can't get; but the canker-worm we can get. It is not a costly preparation. It is supposed there are two broods of them; but my own observation leads me to believe that there is but one brood. Occasionally some of them come out in the fall and do a little of their work then; but they are few. I have seen large elm trees along the road stripped of foliage. A single row of trees, or the south row, will almost always escape the ravages of the canker-worm. That insect has done me more harm than any other. I sprayed many hundreds of trees at a cost not exceeding two or three cents per tree fifteen years of age.

MR. ALEXANDER: We had canker-worm in our country for three years. They ate the foliage off the trees. We have not had a canker-worm for three years. They all disappeared as quickly as they came.

MR. ROBISON: The canker-worm is like a great many other pests. It has its numerous enemies. There is a microbe that gets on the canker-worm and the worm swells up and falls to the ground. It is so with the Hessian fly. They do not last long, because they are cleaned out by something. If it were not for that fact all vegetation would be wiped out.

MR. ALEXANDER: I have seen ants carrying canker-worms away by the million. I don't know whether they were common ants or others.

MR. ROBISON: I am rather inclined to think that the ants are working on the canker-worm. If the canker-worm swells up, then the microbe is getting in his work, and you will see no more of him.

MR. HOLSINGER: I understand the female has no wings and can't fly.

MR. ROBISON: Yes, sir. I think it very likely that the male carries the female on his back. I think he is very gallant.

MR. HOLSINGER: There is no question about it; they do carry the females upon their backs.

Mr. Robison: The females are about two or three times as large as the males.

MR. BLAIR: Your committee has examined six specimens of the apples brought by Mr. Yaw, and beg leave to say that, out of six specimens cut, opened, and examined, it was found that five out of the six had been entered by the larva of the moth at the blossom end, and that the sixth one had been entered at the side; the apple showing a depression or contact with a limb or leaf, which probably induced the moth to deposit the egg there. Your committee thinks from the appearance of these apples examined that there is no question but what the egg was deposited at the blossom end of the apple, and that upon hatching out the small larva ate its way into the core of the apple. We account for the enlarged cavity or canal of the worm, which the larva has made, from the fact that the broken-down tissues of the apple through which the worm passed would quickly become oxidized by the action of the air entering the same, and decay would more or less follow, thereby increasing this cavity, which might be construed that the larva was much larger on entering the apple than it really was.

Mr. Robison: We would like to know if your committee found out when that worm entered the apple.

Mr. BLAIR: It is presuming a great deal to expect your committee to judge the age of a worm that has been sliced in two by a knife.

MR. YAW: The question I want to know is how old that larva was when it entered the apple. Has anybody got an opinion.

MR. BLAIR: There is no way under the sun to judge how old the worm is; it has no horns or wings.

MR. YAW: I believe that this worm was just going into the apple. They

only stay in the apple about ten days. They shed their skin twice in the apple, and twice before they go in the apple. I claim that when you first see the worm it is one-third grown. I cut the apple open and found that Mr. Worm had been in there probably a half-hour.

MAJOR HOLSINGER: All the scientists have investigated this matter. All have declared, with the exception of one man, that the egg is laid on the apple. And I think it is safe to follow those men of world-wide reputation who have examined this matter. The question is now how to eliminate it.

Mr. Robison: It is now admitted that the eggs are not hatched before the apple is formed. \cdot

Mr. YAW: I claim, from practical experience and practical tests made, you will find that that larva is one-third grown when it goes into the apple.

A MEMBER: Is there any treatment for a blackberry plant that will kill the rust before setting the plant?

Mr. Crow: I will just say this much: I have tried that to perfection, and it is just like getting rid of a dog: you have to cut his head off. That is about the only remedy.

MR. BARNES: If you find that the plants are infected with rust before you set them out, you had better burn them.

MAJOR HOLSINGER: You can contaminate blackberries by an application of the rust to the plant.

A MEMBER: Do you know when you get a blackberry plant whether it has the rust or not? Does anybody know that? Can you determine whether it has the rust or not? If you can, what kind of treatment do you use? I would like to know if there is any treatment that is effective.

Mr. Robison: I don't like to do all the talking, but this seems to be a new proposition. The killing of the rust is an easy matter. There are a great many applications that will kill the rust; but the great trouble is that it kills the blackberry plant a little easier than it does the rust.

MAJOR HOLSINGER: Is rust a disease of the root or the plant?

MR. BLAIR: I went into a blackberry patch that was affected by the rust. I made some cuttings from plants that were affected. The new plants that came up immediately showed effects of the rust; so I believe that it is a disease of the root.

MR. ROBISON: It was settled that it was in the sap of the plant. But how does it start? There are a thousand insects that will start it. But it was settled that it was in the sap.

MAJOR HOLSINGER: I would like to say that the blight is a disease of the top of the pear. I have seen the sap under the microscope. But have you ever known that to be grafted into the root? Pear-blight is a disease of the top. Blackberry rust is a disease of the root. And there is the difference. I have tried repeatedly to inoculate it, and have never yet succeeded.

LEGISLATION TO PROMOTE TIMBER CULTURE IN THE WEST.

By Dr. G. BOHRER, Lyons.

That timber culture is an indispensable necessity all over the treeless prairies of the West as a means of developing the agricultural and horticultural resources of the same is a fact so universally admitted that little or no discussion in addition to what has already been said seems necessary in order to convince all of its great value; but the matter of inducing the owners and tillers of lands so barren of timber to undertake and prosecute the culture of trees for windbreaks, hedges and timber for diversified uses is a task of such magnitude as to require not only the most candid and sincere thought, but the expenditure of some treasure as well.

Legislation of a compulsory character has been talked of, and in some of the European countries has been resorted to, but has not secured satisfactory results, for the reason, principally, that a law requiring people to perform an act that they do not know how to perform is very difficult, and it may be said truthfully is impossible to enforce; so that some system of education in the matter of what te plant, when te plant and how to plant and cultivate must go hand in hand with any statutory enactment calculated to insure success. Added to this there must be some kind of remuneration, not very scant as to amount nor far distant as regards the time of realization.

There was a timber-culture law enacted by the national government which was in force during the earlier part of the settlement of Kansas. which to quite an extent nullified itself by providing that the person who timber-claimed 160 acres of land was required to set out and cultivate for five years forty acres of timber, I think, before a title could be secured. Such a task the claimant who was not skilled in tree-culture in any respect soon found to be a most costly method of obtaining real estate; and the result has been that not one timber claim in fifty was ever proved up on under the timber law, but was relinquished to some other party upon the payment of a limited sum of money, and homesteaded by him. Had the government cut the number of acres of timber to be planted and cultivated to one-half or one-fourth the amount required under the law referred to, and provided that it must be planted in belts running east and west, as a means of shelter and subsequent benefit to growing crops, as well as to live stock on the farm. we would to-day have much more timber in Kansas than we now have; and the benefit to both agriculture and horticulture would be apparent on every hand. But now that this land has passed from the hands of the government to the ownership of individuals and corporations, a different inducement must be called into being through legislation, which might be both state and national.

The state might provide that any person who owns forty acres or more of land shall be allowed a rebate on his annual land tax, in the event that he plants, cultivates and protects two or more acres of timber on each forty acres for a term of years, of such kinds of trees as government timber experts have proven best adapted to the locality where any party may desire to plant and cultivate the same; the greater portion of which shall be set in rows running east and west across the tract of land on which it is to be planted. All this may be done in time, in the absence of law encourag-

ing the same, but a long term of years will have passed and much valuable time will have been unimproved as a result of no support from the public treasury.

To protect timber belts, hedges and groves of any kind, planted and cultivated as stated, a stringent law should be enacted, imposing a severe penalty for any sort of abuse or injury to timber, whether in the form of groves, belts, shade-trees, or hedges. The township trustee of each township throughout the state should be required to inspect the timber on each tract of land in his township and file an accurate report with his other reports as to the care and condition of the timber on each farm, through which the county commissioners would be enabled to know when to authorize the payment of money for labor actually performed, in a proper manner, and refuse the payment of all claims for labor not properly performed, thus preventing the squandering of public money.

As a means of educating the public in the matter of timber culture, the law should require experts from the State Agricultural College to hold a meeting once each year in each county where timber culture is neglected, and give special instructions as to the manner of planting trees and tree seeds, the manner of cultivating of all kinds of trees adapted to the respective localities. Along the public highways trees of dwarf habit should be selected, as large trees will prove to be a source of injury to growing crops, and endanger the lives of people traveling on the public roads during windy days. Instructors might be sent to such meetings from the Department of Forestry, at Washington, D. C. Among other matters claiming a large share of attention at such school of instruction, great stress should be thrown upon the importance of timber belts as a most important and indispensable means of economizing the moisture we get through rainfall and of sheltering crops and live stock of every kind against injury from the force of winds.

In the matter of securing trees and tree seeds for planting, the state and national governments should lend a hand, and in doing so place all parties whe receive such aid under obligations to cultivate and protect the trees so furnished.

Mr. Barnes: Last year we held a meeting at Dodge City and visited the Forestry Station there. It was hardly recognizable. We found, by talking to Mr. Wright, that he was in the habit of giving away, to anybody that seemed to want them, 4000 Black locust trees. He does not know whether they planted them or threw them away. I asked him if he ever got any reports from them, and he told me "Not a thing." If that is the way to run the state forestry business, I don't think much of it.

MR. SCHELL: In relation to the medals wen by the state of Kansas at the fair; when I left St. Louis I had a conference, and found that as soon as these medals were made they would be distributed to the right persons.

MAJOR HOLSINGER: It was the expectation that we were to receive a full report.

MR. ROBISON: I would like to say that, in the live-stock department, when we asked about the medals, they said: "Yes, when you put up the money you can draw the medal." We put up something like thirty dollars for the gold medal and a less amount for the silver and bronze medals, and we got our medals. I am under the impression that your medals are in the same fix; if you "put up the money" they will be forwarded.

MR. SCHELL: I think they ought to have the courtesy at least to notify us about it. I understood at the time of the fair that there would be no expense for medals. I am expecting word from them, and we may get it before this Society adjourns.

MAJOR HOLSINGER: At the Paris Exposition they acted similarly. I had the good fortune, or misfortune, to be awarded a silver medal, and found that by sending sixteen dollars I could have it made. I did not answer the letter, and received a bronze medal about as large as a dinner-plate.

Mr. YAW: How does the curculio get its food? Having a sharp, pointed beak it must suck it.

MAJOR HOLSINGER: The curculio and the gouger are very closely related. Any one knows to a certainty that the curculio and the gouger never eat anything after they come to maturity. The gouger and curculio live not to eat but simply to perpetuate their species. They have no jaws; they have only this snout with which to puncture the fruit. Now, there are a number of species. The only eating that these insects do is during the transformation from the egg to the perfect insect. They eat after they are hatched out in the fruit, when they are larvæ, after which they pass into the perfect insect. The curculio makes an incision in the fruit; she turns and deposits her egg in that opening. She now turns around and with her beak pushes the egg into the fruit; the egg hatches out and becomes a larva, which afterward passes out and becomes a perfect insect.

MR. YAW: What was it bit the apple so that it was practically ruined for commerce? All around on the apple there were little punctures. I believe it was the curculio getting food.

MAJOR HOLSINGER: I made that very statement. I know that they do make punctures in fruit. You will frequently find punctures that are made by the curculio.

MR. YAW: Is there any difference between the apple curculio and the plum curculio?

MAJOR HOLSINGRR: Yes, sir; the apple curculio is smaller. The gouger may be known by the fact that he never makes a crescent. It is a matter that may be very easily determined.

MR. JOHNSON: Those are not the only insects that do not feed. There are some of the butterflies and beetles that do not feed. It seems that the only use in life they have is to perpetuate their species. After that they die in a few hours.

MAJOR HOLSINGER: The codling-moth is another.

MR. JOHNSON: The silkworm is another. It eats in the larva form, but in its perfect form it does not. In regard to timber, Doctor Bohrer is mistaken. It is only 10 acres out of 160, and 5 acres out of 80. It was to encourage the planting of trees on the prairies. He seems to think that few, if any, of those claims amounted to anything. I have seen a lot of them where there are as beautiful groves as anywhere; planted in cottonwoods—they grow so readily from cuttings. And I have seen walnuts in the saadhills; trees eight or ten inches through and forty to eighty feet high—a most magnificent growth of black walnuts. It seems that that was a pretty easy way of getting a farm; merely planting ten acres and getting 160 acres

of land. That looked like a very easy way. And I think that there are a lot of us who would like to get a farm in that way.

MR. ALEXANDER: I think he is wrong and right, too. The first timber grant required forty acres, and they reduced it to ten acres. It had a wonderful effect on the appearance of the state, especially in the western part. The great trouble was they compelled them to plant them four feet apart each way, and the consequence was they got discouraged, and but a very small per cent. proved up. The groves are there yet. The ash stood it best; but the last eight or ten years the tree borers have hurt them.

Mr. Johnson: But they only had to have about 700 to the acre. So they were not very thick.

MR. ALEXANDER: They averaged eight feet apart.

MR. JOHNSON: And I think they counted many mighty small ones.

MAJOR HOLSINGER: What is the condition of the forests of Kansas compared with Kansas before settlement? Is n't it a fact that there is a great many times more timber throughout the state now?

MR. JOHNSON: I could not give any statistics, but when it was first settled there was none, and now there is quite a lot.

Evening Session.

REPORT OF FRUIT CONDITIONS IN THIRD DISTRICT. By F. L. KENOYEE, Trustee.

The only apology I have to offer for not writing my report is that I was too busy with my strawberries. In regard to the way the fruit passed through the winter: we had a very hard freeze in February, and it damaged the fruit the same as almost everywhere else. If anything, it was damaged worse in the South than in the North. The blackberries will not be more than one-fourth of a crop; the Kenoyer will average a little better than the others. The Kenoyers I had on two patches, and they were hurt worse on lower ground. The Mercereau was a little worse than the Kenoyer. How much hurt it was I cannot tell. The raspberries had been killed by the exceeding wet weather of the last two seasons. The strawberries were not injured, as we had a heavy snow at that time. The wet season made it so they were not cultivated, but they made good berries. On account of the cool weather they were not damaged very much. All fruit-trees were greatly damaged; and the older trees were so badly damaged that they might as well be cut down. Plum trees are all right. They will be full. There are no cherries on the trees left alive. There will not be many pears. I have not very many gooseberries, and they were badly killed in the bud. As to the outlook for grapes, they were badly damaged; there will be perhaps a half crop. We had it very wet in the early spring, so that berries could not be set out until along in April, and that is very late for southern Kansas. But they have been making a fine growth since setting out; and the outlook is fine for next year. Apples are going to be a fair crop if nothing further happens to them. I think there will be threefourths of a crop.

THE NURSERY SHARK.

By G. L. HOLSINGER.

The proverbs "Honesty is the best policy" and "A rolling stone gathers no moss" have been made over and contracted into one by the nursery shark, and now read: "Honesty gathers no moss." He lives up to the proverb faithfully, and it is his ten commandments, golden rule, and code of ethics.

The nursery shark flourishes on any soil and in any climate in which gullible, long-suffering or easy-going human beings reside. However, it would be wrong to suppose that only those classed in this category are his victims. The fruit-grower who has never been imposed upon by this vampire is seldom found, and even the honest nurseryman must suffer for the wrongs of other nurserymen who are not overscrupulous. For no firm which is in the nursery business can grow all of its own stock, and as they are forced to buy more or less, they will be buncoed, as well as the fruit-grower; but eventually the grower must stand all the less. This loss is not felt in the first cost of trees or plants, but in years of cultivation, pruning, etc., that must be given before fruiting; then to find that instead of what you thought you were planting you have something altogether different and frequently worthless.

Before going further let me say that you must net always accuse the nurseryman of dishonesty or intentional wrong-doing when trees do not fruit as they should. When you think of the hundreds of varieties of trees, shrubs, plants, etc., that he must carry, it is not surprising that occasionally a stake be pulled up and wrongly reset or improperly recorded in the field-book.

A large portion of the blame for the wrongs must, however, be borne by the planter, and though he may howl mournfully about his wrongs, an automatic self-kicking apparatus vigorously applied, while not remedial to trees already planted, would at least be preventive of further damage.

You are like the little boy who went fishing, and on returning was asked what he got. He replied that he "got wet, got bit, and got back." When you deal with the agent you get caught, get bit, and get it in the neck. He gets your money and cussing. The cash he can use; the cussing does not affect his ears, being usually veneered with asbestos, and next season he seeks ether green pastures and people as verdant and easy as you. The fruit-man who will give his orders for trees and plants to reputable men, even at higher prices, will have less complaining to do as to variety, conditions of stock, and grade of stock, and orders given direct to the nursery will find trees better in every way.

It would be a difficult thing to give a good description of the shark so that he could be placed at once by even the detective agency. His height, build or color of hair will not locate him. In fact, measured by the Bertillion system, his measurements or finger- and thumb-prints would not differ materially from others of the genus *Homo*. It might be possible, by close scrutiny, to find a little more freedom of action in the tongue and a slight detection of oiliness in his vocal cords, but nothing that would warrant a more serious charge than "held for investigation" being placed against him.

The tree pedler has many sins to answer for, and the locality that has him will suffer most of all. He has every variety of every kind of fruit.

every shrub known or unknown; and if you have ever heard of anything, and want it, he can furnish it at very reasonable prices, or will charge more fer it if he thinks you want it badly.

David Harum says that he finds it a safe rule to follow, to let the other fellow make a little. If you will apply this, and be willing to let the nurseryman make a little, you will not be so prone to get into trouble. If dealing with the reputable nurseryman, you need have no fear on that scere; his prices are generally high enough; but beware of the man who is selling high-grade trees at low prices.

Hubbard says that labor is the only prayer that is ever answered. As to the truth of this I am net sure, but I do feel assured that it is true if written, "Labor is a prayer that is answered." and by exercising diligence in selection of nurseryman, as well as trees, the planter will avoid much treuble and loss.

The suggestions that I would make to eliminate the nurserv shark would be to go slow on novelties; buy sparingly of the new things until you have tested them yourself; don't be afraid to investigate the nurseryman you intend to patronize; don't buy stock because it is cheap, and, above all, sick the dogs on the tree pedler.

Mr. Barnes: I would suggest, in order to get at facts in this matter, that those in the audience tell their experience.

MR. ROBISON: It is several years since I cut my eye-teeth. But let me say that there would not be so many orchards now if it was n't for the tree pedlers. It is n't fair to the tree pedlers to say that they are all sharks. Now, the tree pedlers and the lightning-rod pedlers are being relegated to the rear. I remember early in 1880 in going to Mr. Litson's, at Benton, and buying my first apple tree. Since that time I have had quite a little experience in that line. But the best way to handle these frauds is to attend the horticultural meetings and get information for yourself; then go to your nearest nurseryman and buy. Get some good, practical information; and you don't have to wait long before you can tell what you have. The planter doesn't wait a great many years, if he has a suspicion.

MR. YAW: We have two or three tree agents here. I kind of stand in with the tree agent myself. I was one myself once. But I believe the nurserymen are not always to be depended upon. Ten years ago I dreve to Sedgwick City to get trees right from the nursery. I got 150 Maiden Blush. I gave them my order and the trees were all labeled Maiden Blush. Those trees all grew up and were not Maiden Blush. I dug them all up and made stove wood of them. I say you can't depend on the nursery.

MR. Robison: I think that nurseryman must have been thinking about some other kind of maiden blushes when he labeled those trees for you.

MR. ALEXANDER: I handle quite a lot of trees myself. I have been in one place for twenty-one years; twenty-one years in the business. And I learn that there is a certain class of people that are not satisfied unless they are cheated. You can't do business with them unless you do cheat them. Another thing: if I find in filling a bill that I have n't got the kind they want, I turn the label ever and write the name on the other side.

MR. HOLSINGER: I don't want anybody to say that I think all tree pedlers are rascals; but I believe that you will get better results if you give orders to reputable nurserymen instead of to agents. After you have been beat once on your trees you will never buy of an agent again. If you deal with the nurserymen you will generally have some recourse, if your trees do not come out all right; for usually they are fixtures, while the agent is gone, never to be seen again.

MR. ROBISON: I am reminded of an instance. I sold a man a bill, and he asked the privilege of bringing some one here from another nursery to pick them out. I said all right. One of my boys came to me and said: "We are putting in blackberries instead of Prairie Rose." And they were a dollar each. I said: "This must stop." The man said: "Why not?" I said: "You cannot do this." It is very difficult to establish a reputation; and then it is just as difficult to maintain it. I want to call attention to the great number of trees that have come from nurseries in this country and east of here, and see how few wrongly named trees have been sent out. It is wonderful that more are not sent out; that men arranging the trees, with no evil intent, should make as few mistakes as they do. I remember only three now. I think the planter ought to be able to tell when he unpacks the boxes just what variety he has. If he is not able to tell, he should get some one who can. There are nurserymen here can take a dozen varieties and tell quickly each kind by the looks.

MR. BARNES: The remedy has not been discussed yet. The preventive is to have a good horticultural society in the county and to patronize your home nursery. The further away from home you go the more chance you have of getting wronged.

MR. SCHELL: I am in the nursery business, and I don't believe that any reliable nurseryman will substitute one variety for another. But mistakes will occur. I agree that many like to be humbugged. There are people that believe it is business to get the best of one another; and of course they believe every one else should do the same. Now, these agents that come around the country and sell one thing for another—and they make a lot of sales—of course, hold us at a disadvantage. But I don't do that way, and Mr. Alexander don't; and I don't believe that any nurseryman does it intentionally.

MAJOR HOLSINGER: I think it would be gross injustice to say that there are no honest nurserymen. I know of too many myself. The nursery shark does not go after the up-to-date horticulturist. He is not the one who is humbugged. A man who is a member of a horticultural society is up to date; and he is the man whom these agents let alone, because he knows. A man who reads the horticultural papers will know about these people, and will be on the lookout for them. Find a man who has been humbugged and ninety-nine times out of a hundred he does not belong to a horticultural society nor read a horticultural paper. To be honest you want to be truthful with yourself as well as with other people. Buy trees of your own nursery and ninety-nine cases out of a hundred they will be nearer right than otherwise. If you would fight these wrong-doers, join a horticultural society and subscribe for the best horticultural paper in the country.

BE FRUITFUL AND MULTIPLY. By REVEREND PICKARD, Wichita.

I believe that any man or woman that is helping to make a more beautiful world, helping to create more beautiful streets, homes, and farms, is helping to bring in the kingdom of righteousness.

I know of no certain body of men that are following their line of duty any more than the horticulturists. I wonder if their work among the trees and flowers causes them to feel their duty and privilege? This is a great work in which you are engaged. By thus working together in your meetings, giving each other the benefit of your knowledge, you certainly accomplish much more. You can do nothing alone. You must work together, and with God. You can plant, but God alone can make it grow. It is God and man working together that make miracles. I see every day just as great miracles as when Christ fed the multidude. Men perform the same miracle nowadays by planting and increasing, and thereby feeding multitudes. God and man working together perform miracles. Be honest men and women by both striving to make clean, wholesome homes and by bringing up in your homes honest, upright children.

To me there is nothing as beautiful as growth. I enjoy the spring. I come from the Northern land, where we have spring late. I enjoy it here. I like it when everything is growing. There are ladies who will keep plants alive all winter just for the pleasure of seeing plants grow. The mother's greatest pleasure is in seeing her children grow. I think one of the greatest pleasures in life is to watch things grow. In Minnesota there was an acorn dropped off the tree into an old millstone lying under the tree, and began to grow. It started up a little shoot out of the hole in the old stone. As it kept on growing the people began to come there, and many were the wagers made as to which would win. It kept on growing, and in the end it raised the old millstone clear from the ground; and the people would come from miles around to see the wonderful power of that little tree. But one day there had been a little rain. I don't know whether it was the rain or not, but that stone split right open; and they kept it to show how the tree had conquered. Out in California there are those enormous trees. Who could say what power they could exert if it could be measured? Compare one of those trees and the little oak, and think of the unlimited power generated in the growing tree. Think of one of those trees and wonder how it was possible for that little seed to build up like that. The growing trees are wonderful. Those little growing roots have the power of analytical chemistry-taking up out of the earth just the food needed for their use. That tree is full of little canals; more so than this city is of water-pipes. The little boats that carry the food to the different parts of the tree are loaded-loaded full of their own particular cargo; and they sail away to just the right place and unload to make just the right thing. It is a wonderful world in which we live, to be adorned by God and man working together.

I think if there is one joy greater than another it is the joy of achieving something. I was visiting a farmer, and he took me to his wheat-field and showed me the growing grain. He said, "Look across this field; have

you ever seen a finer field?" There was satisfaction in his tone. He had achieved something.

And so, I say, this is a great work in which you are engaged. It is a great work, if you are doing it conscientiously. Joe Jefferson said every man should have a garden. There is always something new and something better to look forward to. That is the trouble with old people. They seem to think there is nothing to look forward to. And the pleasure of watching the flowers growing and developing is sure to have a good effect on old people. It will be a satisfaction all the year round. In the winter you have the fruits of your work and the fruits of your garden. But it is not merely a matter of existence; there is something so much higher than that. I am something of a poet, and I daily see how your work is adorning this country. Just imagine what Wichita would be without any trees, without flowers, without lawns. The horticultural society and the horticulturists are the people that make Wichita what it is.

MR. DIEHL: L would rather have the ability and reputation of Burbank than be president of the United States.

THIRD DAY-Morning Session.

Prayer was offered by Reverend Lynch.

GOOD WORDS FOR COUNTY HORTICULTURAL SOCIETIES. By CHAS. IRWIN.

Members of the State Horticultural Society and of the different County Horticultural Societies: I might say before starting that owing to press of business I have not prepared any paper, and so my talk will be general. The subject "Good Words for County Horticultural Societies" is a good-sized subject, and a great many good words might be said. I don't know but that this is a question that is all one-sided. I don't know any bad words that could be said against them.

A great many residents of the state fail to understand the definition of horticulture. I had a conversation with one of the members of the society going out into the country one day. I asked him if he raised vegetables. He said: "No; I am a horticulturist." The definition of horticulture is culture of gardens. I might say there is n't a farmer in the United States to-day that is not in a certain way a horticulturist. And it should be made an important part of his work. If he does that he must get information from some source. No source is as good as union with your fellow horticulturists. And I think that every county in the state of Kansas should have a county horticultural society. With the able assistance of your state secretary, they organized a horticultural society here.

In the organization of a society, the first thing is the election of extremely active men for the officers; men who will take an interest in the society; men who will sacrifice their business, to a certain extent, for the society. Our worthy secretary of the State Society has issued a bulletin that gives plain instructions how to organize a society. That paper has good words in

it—concise and to the point. It looks to me like in every county society it would be a good thing if we would search the townships, and draw out some good man and get him to canvass his township. Coming into the county society at any time, they add to its strength. Another thing, I believe, would add a great deal to the interest in the county societies, would be getting up some general debate upon fruit subjects. We are not all of the same mind. And I think the greatest interest I ever saw taken in any of the state meetings that I have attended is where we got into the liveliest scraps. It interests you; it gives you a stimulant. Another thing: interest the ladies; get as many ladies as you can into the society. Have them take an active part in the work. They enjoy it. And if you attend these county horticultural societies, get up new thoughts, new ways of doing things. You will soon solve the problems of the difficult things to a certain extent.

There is one thing that detracts somewhat from the meetings; that is "thrashing over old straw." And we never get any nearer to a solution. It is, no doubt, not tiresome to the debaters, but it is tiresome to the people.

No horticulturist should be without a horticultural paper. None of us can get better posted, no matter on what, than from a horticultural paper.

There is no combination of people that is of greater worth in proportion to their numbers than the horticulturists. We know that the meetings of the Kansas State Horticultural Society are doing a great deal for the people of the state of Kansas. They are the most unselfish lot of men I ever came in contact with. The fruit-raisers in all time to come will reap the benefit of their labors. Any city of Kansas ought to consider it a high honor to have the privilege of entertaining them. Reports from the various committees show that there will be a light crop in everything except strawberries, owing to the late frosts. Through the work of the Horticultural Society Kansas has come to be regarded as one of the foremost horticultural states in the Union.

A MEMBER: What should the county horticultural society do largely?

MR. IRWIN: That is a hard question to answer very well. Each member should appoint himself a committee of one to get as many members into the society as possible. You should bring up different subjects. You should have a query box. Get up discussions on the subjects suggested in the query box. These discussions should be very short—right to the point. If you have a large society, you will get next to the facts about fruit-growing better than any other way. Don't be selfish with what you find in your readings. Give others the benefit. It will help them, and you will lose nothing by it. I think that, especially when the fruit crop is short, the society should grow faster, and take more interest in trying to find out the causes. Try and find out those causes. Get a great many people interested. You will make the state of Kansas one large garden.

MAJOR HOLSINGER: Thirty-five years ago, at Kansas City, when horticulture was new in this country, a little band of us got together one day in an office and organized a society. I have remained continuously with that organization. I am the only one that was with it then. Many people think that these organizations have been of benefit only to the individual. In the purchase of material, in the sale of fruits, we have always worked together, giving each other the benefit of the experience and the informa-

tion that we have. After securing the proper secretary and the proper officers, the program should be made up. Give each person a special subject and expect him to be there to read it. It is very unusual to have a paper on a program that is not carried out. There have only been three misses in the entire program here so far. And you are to be commended for that. Another thing: meet around at the homes of the different members, and thereby have that fellowship that grows up out of the meeting. If anybody can get up a good dinner it is the horticulturist. We never allow anything to come between us; so that in this way we have a love and affection that grow out of horticulture. The papers are always open to discussion. I find when everybody talks on one side there is no chance for a discussion. I would like to say that the American Pomological Society will meet at Kansas City in August.

Mr. YAW: At the time we started up here the fruit-growers had been dormant for about fifteen years. So we called a meeting of the fruit-growers at the court-house. Six men responded to the call, and we started our little Sedgwick county society. We kept on until now we have considerable of an organization; doing pretty good work. I never went anywhere, never talked with anybody, but what I learned something. Last winter I went to Topeka. I thought I knew about the whole thing. When I got home I found out I didn't know anything; and I started from the bottom and built up again. I got kind of disgusted with the organization; reason would tell me to "Go on; you will come out all right. Go on!"

MR. CROW: The Shawnee county society had run down to such an extent that I think we had six. The next meeting—we met monthly—we had twenty-four, the next forty-eight, the next sixty-two, and kept on until there were about 200. We often have one of the professors from the Experiment Station. It is useless to elect officials who will pay but little attention to the organization; but get men who will work for it. The success of a horticultural society depends on the officers. You must get together and find a place to hold meetings. We make out our program for each month and place; we ask persons if they can fill an appointment; then at our meetings there are no drawbacks. It has worked out admirably. The success is in the officers arranging things.

MR. ROBISON: Twenty-five years ago, when I came to Butler county, I found a horticultural society there. It was rather quiet. But we went to work and made up basket picnics, and had them out in God's country; and they brought baskets well filled; and sometimes I think there were hours that horticulture was hardly mentioned. It was a social; and they exchanged courtesies, exchanged information, ate each others' cake and pie; and I don't really know which was the more pleasant, the ideas gathered there or the stuff consumed.

A MEMBER: I know of a man that had a large orchard which was infested with scale. He concluded there was no remedy and cut all those trees down. Six months afterward he read in a horticultural paper of remedies for scale. He said: "I had no need to cut that orchard down." But it was gone, because he had not heard of any remedy.

HORTICULTURE AT THE FAIR.

By S. M. CROW.

In the first place, Mr. President, let us point out in general terms the first introduction of horticulture into Kansas, along with agriculture, science, and the arts. In this respect it was like the rolling, mighty avalanche, which leaves detached portions of its bulk by the way, yet keeps augmenting in its onward progress.

First, the sturdy immigrant came into the desert, as it was then called, and, with plow, harrow and hoe began battle with the mighty sea of prairie by upturning the fertile glebe. Then scattering the seeds of promise hither and thither; planting an orchard here and another there, and a nursery yonder, thus assuring the hopeful settler that his children's children would sop their hard-earned johnny-cake in the real gravy of the land. The handmaiden then came forward and left her ornaments of skill on every hand—erected churches, schoolhouses and studios for her children, thus throwing facilities in their way for increasing their knowledge.

Let us brush away the fog of but half a century and behold what was then the condition of this now happy and proud commonwealth. Alas! those were dark and gloomy times. Then the pale-faced settler trembled for the safety of his defenseless home; his children and his chickens were plundered by the foe; he planted his corn and beans in fear and gathered his pumpkins and turnips in trouble, and life itself seemed almost ready to leak out from between the sods of his house, though strongly fortified within with three good muskets, a spunky little wife, and a jug of whisky. But how different now is the scene! Where the bark of the coyote then arose on the midnight air with the savage war-whoop, and where the Indian squaw hung her young papoose to scream amidst the roaring of the chilling blasts, the Kansas mother now rocks her darling babe on the carpet of peace and in the gav parlors of fashion; the garments dyed in blood are passed away, and we live to enjoy the rich boon of freedom, peace and prosperity which was purchased by the toils and sufferings of the first immigrants; and to-day our cattle. hogs, sheep, wheat, corn, fruit and the Kansas cow and the Kansas hen and their products are inquired for and used all over the globe, helping to feed the millions. Yes, too, Kansas has gas and oil—some of it Standard. May we not say, Kansas has everything that heart could wish or tongue ask?

Our state is a great improver. Improvements are constantly going on along all lines of industry and enterprise; especially is this true along the lines of horticulture and agriculture. No division line can be arbitrarily drawn between horticulture and agriculture, for the progressive agriculturist always devotes a part of his land, labor, capital and talents more or less to horticulture. These improvements spring largely from the influence of object-lessons, and where can those lessons better be taught than at our annual fairs? How important, then, that these fairs be made educational in a progressive, upward, positive manner. I once heard a good old father in Israel say: "One who all his life had been a regular prayer-meeting attendant ought to know something about horticultural fairs and what ought to be their object.

But fairs forty years ago were no index to fairs of to-day. I am not one

who sighs for the good old times. A model fair of forty years ago would not meet the requirements of to-day any more than the best things in railroading of that time would measure up to our requirements of a flyer of today or a twentieth-century ideal automobile. Do not criticize that statement off hand, but listen: Was railroad machinery then and now the same? Were right of way, road-bed, locomotives, cars, engineers, brakemen, forty years ago and to-day just the same? Flyers then and flyers now? Think of it! I do not believe in sensational railroads nor in sensational fairs, but I do like, and so do you, a railroad-train which gives the impression of dignified and safe moving. You like to feel that you are going; not swaying back and forth on one rail, then on the other, and likely to be landed in the ditch any minute, but going ahead, cutting the air, getting somewhere. You take deeper breaths, your blood is purified faster, your nerves tingle; you wake up, think; you feel like throwing up your hat. You praise the officials; you say: "What cars; what a road-bed!" You say: "This is something like it-like times worthy of our day." When you reach your destination you tell the people how you got there. You advertise the road and tell everybody you meet that, if he wants a ride that is worth while, to buy a ticket on that road, and all the time it is exactly the same thing of forty years ago, but with twentieth-century ideas. Go a little deeper than the machinery of the railroad, and you will find that it is the same steam, the same fire.

I am not a sensationalist; I am a conservative of the conservatives. I am writing of fair machinery which in very many instances has not been strengthened, remodeled nor rebuilt for forty years—machinery then up to date. They met the demands of the time then, but when people became tired of riding ten, twenty or thirty miles an hour they put their machinery in condition to give their passengers sixty and seventy-mile schedules. We should and must do the same thing with the management of horticulture at the fairs of the present day. Capable, experienced business men should be selected as superintendents. A very small mind is capable of pointing out defects and weak places in anything, but, on the other hand, it is quite another thing to strengthen these weak places.

To make the horticulture department of any fair the best department of all, the fruit-growers should be on hand at the annual election of the officers of the fair association; they should see that they are represented on the committee, and before the premium-list is made up, even at the annual meeting, they should make their demands for a limited share of the funds, and for the right to make up the horticulture part of the premium-list, and for the right to name the superintendent of that department. Then they should lay claim to a sufficient space, and should on a fixed date meet there, each with a supply of grapes, leaves, evergreens, and other decorative material; each should bring a hammer, tacks, small nails, string, fine wire, a step-ladder, a willing heart and ready hand, and help to make the place a perfect bower of beauty. Let each at his own home select his best fruit, without spot or blemish, each specimen having its stem complete and carefully packed in baskets or hand packages with plain labels and plates (if not furnished).

Be promptly on hand the first morning of the fair; put five specimens of the large fruits, ten of the smaller, on each plate (not wooden or paper plates, but earthen); after that, each day bring a cloth and wipe your fruit and plates, first consulting the superintendent. These fruits should be perfect—that is, including stem and calyx, free from action of worms, defacement of surface, or breaking of skin, of a bright normal color, and not less than two inches in diameter [if apples], to rank as No. 1. Pumpkins, melons, potatoes and all vegetables belong to the vegetable department of horticulture; with vegetables, weight and size are prime requisities, but quality must go with them. Flowers, plants and ornamentals belong to the floral department of horticulture; each of them should be provided for. Berries should be accompanied, if possible, with a natural cluster. Flower, form, color, substance and stem are the main requisites. In judging, score-cards are useful, especially if there are three judges; in which case let each judge mark his score-card without consultation; then compare them.

In fruit exhibits the quantities should be alike; that is, plates of five should not compete with peck or half-bushel baskets or boxes. Everything, without a single exception, should be labeled plainly. There is as much education in the label as in any part of the fair; after the awards are made the name of the owner ought to be added.

Unless the display is extremely large and numerous, one competent judge will be found more convenient and the work will be done more satisfactorily. Single entries should be judged first, and aggregate entries afterwards. A competent committee on nomenclature should go over the horticulture exhibit before the judges, to see that all the naming is correct.

A substantial premium should be given to the party making the largest number of separate meritorious entries. Another ought to be given to the exhibitor whose entries took the largest number of premiums. We have known these two premiums to more than double the display and make more competition. No premiums should be given on unnamed or misnamed horticulture products.

In judging, get the competing exhibits together, and in a general way discard those plainly inferior, thus cutting the competition to a low number of the very choicest. Let no bystander interfere, and certainly do not consult any one but your fellow judges and the superintendent of that department.

In conclusion, let me say that by a close adherence to the rules and system pointed out in this paper the agricultural, horticultural and mechanical fair can be made a school, an educator; a place and a time to be looked forward to with joy by the farmer and horticulturist and his family, and from which they return more thoughful, more earnest, and determined to live on a higher plane.

Hence, I would suggest that every county in Kansas organize a horticultural society, and where the state is sparsely settled a community or district consisting of a number of counties form a society, and hold a fair for the mutual education and advancement of its citizens and the promotion of its ewn interests; and I insist that this is possible and will be carried into execution in the not distant future. In any case, I feel to speak frankly when I say it cannot be denied that the reforms set forth in this paper would, if carried out, give those sections equal advantage with their more fortunate neighbors. Wherever it already exists, such an organization is to-day recognized as one of the leading factors in advancing the interests of horticulture, in develop-

ing an educational, social and fraternal feeling in the country, and adding a new beauty to the occupation of the farmer and horticulturist, and it offers to their children blessings that will insure a continuous residence in the country.

In conclusion, let me say the officers and members of the State Horticultural Society are ready, anxious and willing to give liberal aid and assistance in the work of organizing county and district societies, and willing, too, to give warning of mistakes and failures.

REPORT OF COMMITTEE ON RESOLUTIONS.

The officers and members of the Kansas State Horticultural Society express their thanks to the Hon. Finley Ross, mayor, and to the members of the city council, for their kindness and courtesy in giving the use of the city building in which to hold our meetings; also, to the local society, for their assistance and interest, as well as for fine samples of fruit; also, to the clergy of the city, and the ladies and gentlemen who furnished the excellent music and entertainment; to the daily press of the city—the Eagle and Beacon, for the very full and correct reports of the meetings; to Chas. P. Mueller, florist, for the elegant decorations of the hall; to the gentlemen of the automobile club, who so kindly took us over the beautiful parks of the city; and to the citizens generally and the ladies—Mrs. Litson, especially—who furnished beautiful flowers, and have taken such an interest in our meetings, and who have added so much to the pleasure of our stay in your city.

We should take pleasure in meeting in your beautiful city again, and enjoying the hospitality of your citizens, on some future occasion.

J. R. MEAD, J. J. ALEXANDER, E. G. HOOVER, Committee on Resolutions.

STORING AND SPRING MARKETING OF APPLES.

By BERT McCAUSLAND.

Mr. President, Ladies, and Gentlemen: Storing and spring marketing of apples is probably of more or less interest to every grower and handler, as well as to each and every consumer, of that great and grand American fruit, the apple.

The first thing necessary, from the handler's standpoint, is a rigid selection of well-colored apples of even ripeness and quality; and I will take this opportunity of saying that unless the quality is contained inside the box or barrel, the seller will certainly wonder how any one makes a success of storing apples and selling them in the winter and spring months at prices that appear profitable. I use the word "appear" advisedly, because prices are not always what they seem to be.

In the matter of packages used for storing apples, the consensus of opinion held by brokers, wholesale and retail dealers is, that the one-bushel box is the package that proves most attractive to the consumer, and it certainly is of the greatest importance to give the "man behind the money" what he wants in package and fruit; because it costs less time and expense to sell a

package that appeals to the consumer than to try and divert his trade to some other package. Still, the old three-bushel barrel will be used for several years to come in handling the more common varieties and grades of apples. In the larger markets the tendency has been, during the past few years, to use paper linings in boxes and barrels; some of the facings are quite elaborate, and they undoubtedly prove attractive to the probable purchaser upon inspecting package. Experiments in different cold-storage plants have proven that wrapping apples in paper prolongs their keeping quality, and apples treated in that manner are not as susceptible to scald as apples that are not wrapped.

I have perhaps wandered somewhat from the subject assigned me, but it is a very hard matter to refrain from giving some advice on the subject of packages.

Referring back to the matter of storing apples, after they have been carefully selected and the box packed so full that it bulges out and stays bulged after the lid is nailed on, it becomes necessary to hurry the box to the cold-storage plant as speedily as possible—the same day the fruit is picked is the best time. In packing apples in barrels we believe in double facing head end of barrel. Always use the same general size apples that the barrel contains. Facing should not show better quality than the general contents of the barrel, in order to secure satisfactory results in future transactions. It is essential that all apples packed for cold-storage purposes should be ripe and well colored, in order to prove satisfactory when taken out of storage. In this connection, our general experience is that a red apple, when ripe, stands storage better than a white or light-colored apple. While on some markets Grimes's Golden sells at the highest market price, it is necessary to use considerable care in selecting apples of that variety for storage.

In the matter of temperature best suited for holding apples in cold storage, consult the manager of your local cold-storage plant; if he does not know, write Charley Southward, Wichita, Kan., or the Western Fruit Grower, St. Joseph, Mo. They know. My personal opinion as to the best method to follow in marketing apples in the winter and spring months is to dispose of them just as quickly as you and the other man can agree on a price.

Of course, supply and demand, emergency freight rates from New York state and local conditions influence the matter of price. For that reason, the essential point in the transaction—the price—should sometimes be arbitrated, to secure the most desirable results.

It is not possible to lay down rigid lines governing the storing and spring marketing of apples, and the only reliable method I can suggest is for the ambitious to get in on the fall-packing deal, and follow it through one or two seasons; then he will know that it requires careful and honest packing and conscientious treatment to succeed.

Thanking you for your kindness, and wishing your association the success it so richly deserves, I beg to withdraw.

THE HORTICUTURE OF THE FUTURE. By F. L. KENOYEE.

After having spent the last five weeks under the high mental and muscular tension required in harvesting and marketing a heavy crop from eight acres of strawberries during the present rainy season, it is with difficulty that I am able to divert my mind from the horticulture of the present to "The Horticulture of the Future." One has but to contrast the horticultural products and the cultural methods of to-day with those of a quarter-century ago to realize what we have achieved in the way of improved fruits and vegetables. It is quite within the memory of most of us that, with few exceptions, wild fruits constituted almost the entire supply for our tables. Then the children were sent forth with bucket and basket in hand to search through woodland and meadow, hillside and swamp, in quest of strawberries, blackberries, mulberries, raspberries, huckleberries, gooseberries, grapes, plums, and crab-apples. Even the insipid elderberry was utilized by the good housewife in making the internal mechanism of pies and tarts. What the children found of these fruits went to swell the bill of fare of the fortunate family; when they failed in their search, as they often did, the deficiency was made up with bacon and hominy.

The first commandment given to man by the creator was to subdue the earth. At present the creative skill of such master minds as Burbank, Bailey, Munsen and others is bringing the insignificant wild fruits under subjection to their wills, and transforming them into large, beautiful, luscious fruits that bear as little semblance to their wild progenitors as the Anglo-Saxon does to the African Hottentot. From the small, inferior wild fruits, with their short ripening period, have been evolved the superior fruits of to-day, in almost endless variety, with their ripening season spanning the entire cycle of the year. We now have early, medium and late varieties in all fruits; the fruit belts have been greatly widened; insect and fungous enemies have been held in check. Improved methods of cultivating, harvesting and marketing have been adopted, and fruit-growing has become a specialty, until now, instead of the few enjoying such luxuries as plum-butter, blackberry cobbler and crab-apple preserves, fruits from all sections of the globe, in almost endless variety, form an important part of the daily menu of all civilized people.

The many recent improvements in the size, beauty, quality and productiveness of our fruit are but pointers to what may be attained by the horticulturists of the future. The seedless orange has within the last few years displaced all other varieties in our markets. Burbank's stoneless prune will soon be followed by stoneless peaches, apricots, and cherries. A few years hence we will be eating fruits that are wholly unknown and undreamed of to-day. Not only will we have greatly improved varieties, but many hybrids between different species, and even between different genera, will be produced and brought into general cultivation. We now have several hybrids among the berries, and Burbank's plumcot, a cross between the plum and the apricot, is an example of what will soon become general among the tree fruits.

No one can predict the possibilities that lie in some of our native wild fruits that have never yet been improved by the skill of man. Such fruits

as the Red and the Black haw, the persimmon, the papaw, the May-apple and the numerous species of huckleberry will in time each pass through the molding hand of some "wizard of horticulture" and be placed among our common cultivated fruits.

The belt occupied by each kind of cultivated fruit is being continually widened. The peach, which was originally a native of Persia, with its semitropical climate, has been pushed farther and farther north, until now it may be grown with some degree of success in Canada. What is true of the peach will in time be true of the orange, lemen, fig and other semitropical fruits. Likewise the fruits of the far north, the cranberry, the gooseberry, the currant, the raspberry, are being acclimated farther and farther south. The currant and gooseberry are not yet very successfully grown in our state, and they will probably never be until some resident of our state produces two or three generations of seedlings from which to select hardy naturalized stock that will be at home in our Italian climate. There is not a more favorable lecality in our state than right here in the vicinity of Wichita for some experimenter to originate varieties of the gooseberry and currant that will be perfectly at home in the Southwest. The Kansas raspberry revolutionized raspberry growing in Kansas. The next generation will be growing car-loads of Kansas currants and Kansas gooseberries.

The spray-pump is now considered almost indispensable in growing fruits. Our children will see the cumbersome spray-pump discarded, not because it fails to destroy bugs and blights, but because it will be no longer needed. Napoleon, the great general, was once asked the secret of his military success. He replied: "I conquer by destroying my enemies and protecting my friends." We are just taking our first step towards horticultural success -we are "destroying our enemies." We are awful slow in learning the second and perhaps most important step, viz., to "protect our friends." We shoot and poison the birds and rodents that feed upon our seeds, plants, trees, and fruits, but we permit the idle boys to go along the highways and hedges and train their target-guns on the feathered songsters and maliciously destroy every nest in sight. We harbor that greatest of all frauds, the domestic cat, which annually destroys millions of our most valuable insect-destroying birds. When insects attack our trees we attempt to destroy them, little caring how many useful insects perish at the same time. If perchance the offending insect should be the aphis or the scale, we mix a concoction of kerosene and soap and sally forth with spray-pump to deluge the offending insects. In so doing, the friendly insects, ladybugs and lacewinged flies, are more completely annihilated than the insects we intended to destroy. Were we to use tobacco solution we would as effectually destroy our enemies, and at the same time leave our friends wholly unharmed. This would be putting tobacco to the use nature has intended—as a louse killer and not as a fool killer.

Every insect pest has some natural enemy which may be utilized for its destruction. May we not learn a lesson from the fruit-growers of Californa, the most successful horticulturists of our country? When the fluted orange scale threatened the destruction of their groves, they imported a ladybug from Australia which, in a short time, practically exterminated the scale. More recently the black scale has attacked the citrus trees of California. Two of its insect enemies—a ladybug and a parasitic fly—have been imported, and they are rapidly exterminating the black scale. I have successfully

combated the melon aphis by attracting the ladybugs and lacewing flies to the melon patch in sufficient numbers to completely destroy them. This I accomplished by planting turnips and radishes in some of the spaces between the melon rows. When the turnip aphis became sufficiently numerous to attract the ladybugs and lacewings in great numbers, I cut down the turnips and radishes. As the plants withered the lice perished, and their insect enemies had to go elsewhere in quest of food. They soon spread over the young melon plants, and in a short time every melon aphis was devoured. This shows what can be accomplished when we learn to encourage the multiplying of our insect friends.

The fungous diseases of plants are possibly more easily controlled without spraying than the insect pests. Horticulturists, and agriculturists as well, are recognizing the fact that some varieties are less affected by scabs and blights and rots and rusts than others. Our government is now undertaking the task of eliminating the cotton-leaf blight from our Southern cotton-fields, not by using the spray-pump, but by originating a variety of cotton that is immune to that disease. That the government will succeed there is no doubt. Many otherwise valuable varieties of all our cultivated fruits have been discarded en account of their being subject to the attacks of fungous diseases. The up-to-date fruit-grower selects for his planting the pear that is freest from blight; the apple that is least affected by scab and bitter rot; the raspberry and blackberry that are the nearest immune to anthracnose and rust; the plum, peach and cherry that can best resist the black rot. A few years of systematic selection and breeding will give us varieties of all our fruits that will be able successfully to resist the attacks of all injurious fungous diseases. The recent organization of the American Plant-breeders' Association will give such an impetus to the improvement of our fruits as will place the horticulturists of the near future far in advance of what they are to-day.

Query: What is the cost of strawberries? What is the cost of picking strawberries—the general and incidental expense?

Mr. Kenoyer: I am not qualified to answer that question, because I sell all my berries in the same market. The cost of a crate of strawberries is something in the neighborhood of a dollar.

Mr. Barnes: I would say half of that,

MR. HOLSINGER: It will vary every year. It will range every year from forty-eight cents to fifty cents. It depends on the size. It costs in the neighborhood of thirty-five cents for picking—that is, around Kansas City. We always use the second-hand crates. I think it would be nearer seventy-five cents, including all labor of picking.

MR. McCausland: My epinion is that this year has been one of the most unfavorable seasons that we have had in the last five years. Berries have been of very poor quality. There have been a number of crates sold in Wichita as low as forty cents. I don't believe you can market berries at less than ninety cents.

A MEMBER: I will tell you how to count the cost of a case of berries. As a general thing pickers get a cent and a half. Cases cost last year thir-

teen and a half cents laid down. Now, you have to make the boxes and the crate. Allow a cent and a half for that. There is fifteen cents. Now, add that on to thirty-six cents and you have fifty-one cents. Now, your helpers and packers in the shed will cost you ten cents more. That brings you up to sixty-one cents, laid down at the shed. It is safe to say it will cost you sixty-five cents on the track. Where does the grower get his profit who has raised his crop and used his land? There are a few cases at the first of the season that you get as high as two dollars for. Well, there is some come out at that price. The grower has made a dollar on a case; and he has raised his crop and used his land; and besides, that is only in the first of the season. Now, a man will sell ten cases at two dollars and 1000 at one dollar. Today there were about thirty or forty cases came into this town, and they are worth \$2.50.

Mr. McCausland: For about twelve days we have had a very poor market. During the month of May our price has been \$1.65 a crate.

E. A. COOLEY: In considering these items they don't say anything about planting, hoeing, and other such costs.

Adjourned sine die.

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PROCEEDINGS

OF THE THIRTY-NINTH ANNUAL MEETING OF THE KANSAS STATE HORTICULTURAL SOCIETY, HELD AT TOPEKA, KAN., DECEMBER 26, 27, AND 28, 1905.

FIRST DAY-Afternoon Session.

TUESDAY, December 26, 1905.

The Society was called to order at 2:30 o'clock by the president, Maj. Frank Holsinger.

Prayer by Rev. W. C. Evans, of the First Methodist Episcopal Church, Topeka.

Reports on fruit conditions were then presented by trustees:

REPORT FROM THE FIRST DISTRICT. By E. J. HOLMAN, Trustee.

The season of 1905 opened auspiciously, but "there's many a slip'twixt the cup and the lip." The early spring gave fruit-buds a rush ahead of time. Apricots, plums and peaches were ready to burst into bloom in March and early April. Pear and apple were correspondingly early, as also the small fruits; but spring lingered, and reversed its usual course, making the latter end the colder, causing immense damage all along the line. In tree fruits the results were especially severe. It is believed by some that the two preceding wet seasons had a debilitating effect and rendered the trees more susceptible to injury by a weakened condition in meeting the peculiar spring conditions. We believe that the winter of 1897-'98, with its low temperature, affected many beyond recovery; and since that time they have been on the decline, the last spring ending a large number of pear, peach and apple trees, whose fatal injury dates as above, the greatest proportion of loss being of pear.

The present year has given a long growing season, probably without a parallel in length of period between the first budding and the shedding of leaves; foliage held on very late, but the growth seems healthy and in good condition, and, barring excessive low temperature and the hitherto fatal freakish spring, should and will have the blessing of a fruit crop the coming year.

The strawberries, cane fruits, currants, gooseberries and grape wood are in fine condition; all together, we would report conditions promising for the year ahead. Of crops for 1905, strawberries gave the only yield approaching full crop, bringing fair prices; raspberries, blackberries, currants and gooseberries varied in their production in different localities, and gave from one-fourth to a full crop, selling well; currants, a half crop and good prices; gooseberries, almost a failure; grapes, sixty per cent. of a crop, sold

well; quinces, a failure; pears, the most complete failure since trees were planted in Kansas; plums, twenty per cent. of a crop, the Japans helding their own well with the domestics; peaches, a sprinkle of some varieties, the Lewis doing even better than seedlings. While the apple crop, as a whole, must be termed a failure, there are exceptions; though nowhere in the first district have we heard of an orchard producing a full crop. Some of the earlier varieties, as Duchess and Wealthy, came nearer, and gave their owners good profits. In spots throughout the district were orchards that with partial crops gave their owners some profit. Mr. Oberndorf, of Centralia, had about 350 barrels. He pruned, and thoroughly sprayed three times, excepting nine rows, which he says gave him the best apples. This gentleman is a painstaking orchardist; such statements, and the conditions and results of the past year, must evoke the fruit-grower's most thoughtful attention.

Concluding, we want to say there are many hopeful fruit-growers in the first district that are continuing the care of their orchards, believing that there is, er soon will be, an end to the past era of comparative failure.

FRANK W. DIXON: I am from the first district. I haven't anything special to report. The first fruit of the season to report on, I suppose, will be the strawberry. I am interested in that, a little, myself. ranged on the different varieties from about forty to seventy-five per cent. Some of my fields were ruined and I didn't get any at all. The quality of those I did get was very fair, and the market was pretty good, and I made some money; but, taking it as a whole, the fruit crop was the worst failure ever known in our county. Raspberries and blackberries were almost a total failure. The cause was wet weather the previous season and a more than usually hard winter, and they were failing before they went into the winter. While peaches were in unusually good condition in the fall, so far as buds were concerned, yet they were killed by hard freezing. Apples in one of our erchards were about a ten-per-cent. crop, but we got a long price for them; so they were as good as if there had been a twenty-five-percent. crop. Other orchards had no apples at all on account of a hail-storm. Apples down in our county were a practical failure, as were also peaches, excepting in our immediate locality, where we had a few. They are in very fair condition for the coming season, except the peach buds on orchards that have been uncultivated and unpruned. The apple buds are in unusually good condition where they have been cared for, but trees that are grown in sod seem to develop the buds earlier, and when the late stormy weather came many trees blew down, and I don't know just what condition they are in. Time will prove a good many of these things. Raspberries and all small fruits are in the best condition for a number of years, but a very little bad weather can knock the whole business out. I know that orchards that have been sprayed well and taken care of are in far better condition than those that have been neglected. The time is coming when we must have a compulsory spraying law to keep so many diseases and insects from ravishing our orchards.

REPORT FROM THE SECOND DISTRICT. By E. P. DINNL, Trustee.

Apples gave less than one-fifth of a crop; pears, less than one third of a crop; cherries, one-half crop; peaches, very few, mostly seedlings; strawberries, one-half to two-thirds of a crop; raspberries, one-third of a crop; geosberries and currants, failure; blackberries, Snyder, full crop, others one-half crop; grapes, one-half crop.

Trees and vines are in very good condition, promising a full crop next year. What apples were stored for winter are not keeping well. Willow Twig, Janet, Winesap, Misseuri Pippin and Grimes seem to suffer most.

REPORT FROM THE THIRD DISTRICT.

By F. L. KENOYER, Trustee.

The celd wave of last February proved almost a death-blow to the fruit crep in southeast Kansas. The mercury in tested thermometers reached twenty-three degrees below zero, about the same temperature that was registered in the northern part of the state, while the vegetation that develops in our Southern climate will not stand as much cold as that of the Northern latitude by eight or ten degrees. This severe weather resulted in the killing of many cherry, peach, plum, aprisot and quince trees, and rendering the crop of these fruits almost an entire failure. There were a few bushels of Wild Goose plums marketed in Montgomery county, still fewer cherries, and not a single peach.

Apples promised a half crep at blooming-time, but by the middle of August the fruit was almost all on the ground, presumably the result of codling-meths and scab. Few persons spray in our section, and if they did, last spring was too wet at the time spraying should have been done to have accomplished much towards saving the crop.

Pears were an average crop, and sold in the local market at one dollar per bushel. We have but few commercial orchards; so a failure in tree fruits makes but little difference.

All varieties of blackberries that succeed in our district were badly frozen, most of the canes never leafing out above the snow-line. The snow lay about fifteen inches deep on the level, and in most blackberry patches it was drifted deeper, which gave us some berries on the branches that had been covered with snow. The Early Harvest, Kenoyer, Kittatinny, Mercereau, Erie and Iceberg all sustained apparently the same injury. They produced about five per cent. of a crop, and sold in the home markets at an average price of \$2.75 per crate.

Raspberry plantations have succumbed to the anthracnose, which disease has been encouraged by the continuous rains of the last three summers.

Strawberries alone, of all the fruits, produced a full crop. The berries were under size, but otherwise perfectly developed. They sold in the markets of the oil- and gas-fields at an average price of \$1.75 per crate.

The outlook for next year's crop of fruit is not very flattering. The exceedingly wet spring delayed the setting of small-fruit plants, so that many of the new plantations are a poor stand or a failure. Wherever a good stand of plants was obtained all kinds of small fruits are in prime condition. The trees of all the stone fruits are half dead from the effects of the February freeze and will never fully recover. The warm autumn days have

swelled the peach buds so they will be jeopardized by a temperature of ten degrees below zero. Apple and pear trees were generally uninjured by the freeze and are in good condition to do their part next summer, if the horticulturist does his in the way of combating the multitudinous species of insects and varieties of fungi.

REPORT FROM THE FOURTH DISTRICT. By John Cousins, Trustee.

After reading B. F. Smith's letter to the Western Fruit Grower, in which he talks of the mammoth fruit he saw at Portland, Ore.—pears seven inches in length and twelve inches in circumference; twenty-three Wolf River apples that filled a bushel basket—I felt a little timid about making out a report. But when I came to investigate I found that Michigan, the great apple state, had a failure in its apple crop this year, and most of the Eastern states also. We are supplying them with apples, and Kansas is not so bad after all.

According to the reports of the apple buyers, Wabaunsee county had more apples and a better quality than any other county they were in. There were three buyers in the county, and one of them reported that he shipped thirty-seven car-loads.

APPLES —Yellow Transparent, 100 per cent.; Early Harvest, 50 per cent.; Cooper's Early White, 50 per cent., extra good; Duchess of Oldenburg, 100 per cent.; Rambo, 75 per cent.; Sweet Bough, 25 per cent.; Flora Bell, 10 per cent.; Maiden's Blush, 50 per cent.; Snow, 25 per cent.; Milam, 25 per cent.; Talman Sweet, 15 per cent., Smith's Cider, 50 per cent., damaged by bitter rot; Tulpehocken, 100 per cent., extra good; York Imperial, 100 per cent., quality good; Missouri Pippin, 100 per cent., struck with bitter rot and one-half fell off; Ben Davis, 50 per cent., more shipped than any other one variety; Rome Beauty, 100 per cent., very fine; Jonathan, 75 per cent.; Grimes Golden, 50 per cent.; Wiaesap, 20 per cent.; Janet, 25 per cent.; Roman Stem, 25 per cent.; Limber Twig, 50 per cent.; Little Romanite, 100 per cent.; Baldwin, 50 per cent., fine.

Crab-apples.—Siberian, 100 per cent.; Hyslop, 100 per cent.; Transcendant, 10 per cent.

Pears.—Kieffer, 50 per cent., is the only pear that did any good with us this year.

Quinces.—Champion, 100 per cent.

Plums.—Wild Goose, 50 per cent.; Burbank, 100 per cent.; Green Gage, 50 per cent.

Cherries, 10 per cent.; grapes, 20 per cent., vines badly winter-killed; strawberries, 100 per cent.; raspberries, 50 per cent.; blackberries, Snyder, 100 per cent.; dewberries, 100 per cent.; gooseberries, 10 per cent.; currants, 20 per cent.

Fore part of winter was mild; then suddenly turned cold (fifteen degrees below zero), killing the peach buds. The last killing frost was April 17.

REPORT FROM THE FIFTH DISTRICT. By WILLIAM CUTTER, Trustee.

My horticultural enthusiasm is at a very low ebb. The failure of a fruit crop to a man past eighty means a great deal more than it does to one of half that age, and this year came nearer being a total failure of all tree fruits than any within my memory. The winter was extremely cold; so cold that it damaged all apple trees upon loose or sandy soils. They bloomed profusely and the weather was favorable for a good setting of fruit, but the sap flowed so slowly through the damaged wood that the young fruit was starved to death. A favorable summer has given the trees a moderate growth and there will be a heavy bloom next year. There was not one-tenth enough apples grown to supply my district; stiff clay and gumbo soils bore about all the fruit we had.

Pears were about as near a failure, from the same cause.

Peach buds were winter-killed and trees damaged, but they have made a good growth; the extreme dry fall ripered the wood and buds early and our prospect for a peach crop next year is better than usual.

Cherries were a failure and the trees are not in good condition.

Plums gave us about a half crop; Wild Goose, Gonzales, Pottawatomie and De Soto doing the best. Six trees of Munson's improved Texas persimmon, six years old, have supplied an abundance of the best fruit from September to the end of the year.

Grapes were not a quarter of a crop and prospects not flattering for another year. Raspberries, blackberries and strawberries were a good crop; there was just enough rain fell to keep them growing and ripening to the last.

REPORT FROM THE SIXTH DISTRICT.

By J. J. ALEXANDER, Trustee.

We have again reached another milestone in the onward road of the unseen in the progress of time. This year has been to us quite an experience. After the 1st of January, 1905, the winter was very cold. The temperature fell to twenty-six degrees below zero, and killed almost all of the peaches, and damaged the last year's growth to some extent.

The cherries came through in pretty good shape, but were not as large a crop as the year 1904, but the quality was good, with no insect stings.

The apples and crabs proved a fair crop. They were not injured by the cold weather, but the fruit was more wormy than we have ever had it before. The codling-moth was very bad, and a very large percentage of all varieties of apples and crabs were infested, except Whitney No. 20, which seemed to escape to some extent, not being so badly injured as other varieties.

Next comes the plum, which was good, with no sting from the curculio, especially the Elwood, which has borne for the last three or four years, with no signs of curculio, and has been of excellent quality. This plum is of the Lombard family.

Next in line comes the small fruit, which in almost all instances was a fairly good crop, except the raspberry and blackberry; these were a total failure this year in this locality. The gooseberry was good, with no mildew or rust; the strawberry was of good quality, but not as abundant a crop as the year before; grapes were good, but, like the strawberry, a light crop.

With regard to the season, after the hard, cold winter, when spring came, the season was all that could be expected or asked for.

All kinds of trees have put on the best growth I ever saw, and went into the winter with well-matured wood; and fruit-buds are in the best dormant condition I ever saw them.

We had a dry spell in September that matured the wood growth and developed the fruit-buds; so we have up to this time the best possible prospects for the coming season.

REPORT FROM THE SEVENTH DISTRICT. By Gro. A. Blair, Trustee.

The seventh congressional district of the state of Kansas comprises thirty-six counties, located in the south-central and southwest pertions of our state. Your trustee could not personally visit and inspect each county in the district; so a list of questions was prepared, and copies mailed with return addressed envelopes, requesting a report on each question, so near as could be given, to members of this Society, acquaintances and prominent fruit-growers of every county in the district. Reports have been received from fifteen of the thirty-six counties, leaving twenty-one counties from which no report was received.

The general condition of fruit-buds and trees all over the district, up to January 1, 1905, was good, except in Clark county, where a hail-storm injured the trees in 1904. The general condition of fruit-buds in the spring of 1905 was good, except peach and plum, the former being all dead, except in the western half of the district. The plum suffered more damage in the bud in the counties of Sumner, Sedgwick, Kingman, Reno, Pawnee and Rush than elsewhere in the district. Excepting the peach and plum in some localities, the crop of all other fruit bloom was exceptionally large.

The crop of fruit set as compared to the crop of blossoms reported throughout the district ranges from 10 to 60 per cent. The percentage of fruit set which hung on the trees and matured is reported from 25 per cent. in Pawnee to 90 per cent. in Ford and Finney counties.

The percentage of a full crop of apples picked varies from 5 per cent. in Barber county to 80 per cent. in Ford and Hamilton counties.

The pear ranges from 10 per cent. in Sedgwick to 75 per cent. of a full crop in Kingman and Ford counties.

The peach, beginning in Ford county at 5 per cent. of a full crop, increased westward to the state line, until it reached 75 per cent. in Hamilton county.

The plum made a fine yield in the greater part of the district, ranging from 25 per cent. in Kingman county to 80 per cent. in Harper, Clark and Stevens counties, 85 per cent. in Hamilton county, and reaching 100 per cent., or a full crop, in Barber county.

Cherries yielded 20 per cent. in Pawnee, 70 per cent. in Harper, 80 per cent. in Stevens, 90 per cent. in Hamilton, and 100 per cent. in Barber county.

Blackberries bore 40 per cent. of a crop in Harper county, and a full crop in Kingman and Barber counties.

Dewberries gave a half crop in Sedgwick and Sumner counties, and a full crop in Harper and Barber counties.

Raspberries bore a half crop in Harper and Pawnee counties, and a full crop in Barber county.

Strawberries gave a 50-per-cent. crop in Sedgwick, 60 per cent. in Sumner, 65 per cent. in Ford, 75 per cent. in Finney and Reno, 90 per cent. in Harper, 95 per cent. in Stanton, and 100 per cent. in Barber, Clark and Stevens counties.

Gooseberries made a good yield wherever grown, running from 50 to 100 per cent. of a crop.

Currants ranged from 10 to 100 per cent. of a crop.

Grapes were badly injured by freezing, and, in some localities, by floods. Hamilton, Harper, Barber and Clark counties report a 70-per-cent. yield; Pawnee, 100 per cent.

In the eastern half of the district, scab on the apple, rot on the plum, blight on apple and pear are reported. The western half was more free from these diseases, and some localities entirely exempt.

The codling-moth, canker-worm, curculio, black aphis, woolly aphis, tent-caterpillar, borer, grasshopper, web-worm, box-elder bug and the cut-worm are abroad in the big seventa district.

The consensus of opinion is that the codling-moth is more destructive and does more apparent damage than all the others. One report estimates the loss from this one insect at from fifty to ninety per cent. of the crop. The curculio has made considerable devastation in the east half of the district. The canker-worm is not now numerous.

Most all reports show that spraying is being more generally practiced; that it is regarded as a successful protection when seasonably and rightly done.

The insectivorous birds of Kansas are quite generally distributed. They are increasing in the western part of the district.

Hamilton, Ford, Pawnee, Reno, Sedgwick, Sumner, Harper and Barber counties report a greater interest in horticulture than in former years, and a constant increase in fruit-tree planting among the people.

Timber planting continues over the district. Barber county says 500 per cent. of an increase over former years. Harper is planting largely, while Reno and Finney counties are planting some trees.

It is universally stated that the fruit-trees, vines, canes and bushes are in the best of condition for entering the coming winter of 1905.

The fruit destroyed by the birds, as reported, was slight in Finney county; twenty per cent. in Pawnee county; Sedgwick and Clark report some damage, while Barber county says that they will destroy most of the late grapes unless they have mulberries.

B. F. Van Orsdol: The first district has been reported on slightly, but we hate to be pushed onto the back seat. You all know that we have stood first for a great many years. We have raised more apples in the first district than all the rest of the state put together, and we hate to take a back seat. The reports we have heard here have given several reasons for this failure, but I do not think it affects our district so far as such reasons go. I believe our failure was mostly owing to the wet, cold weather at blooming-time. This prevented fertilization of the bloom. A great many report trouble with codling-moth, but if they will look at it they will find it is poor fertilization that caused the trouble. We will have just such conditions in the first or any other district as we had this year if we have the same climatic influences. That I claim is the reason. We still hope that we will come up and stand at the top again, because we hate to take a back seat.

B. F. SMITH: I think Mr. Diehl stated about the facts in our (the second) district. We had, as he stated, from fifty to seventy-five per cent. of a strawberry crop, and about fifteen per cent. of a blackberry crop. I do not think that in Douglas county we had over five per cent. of an apple crop. As to the prospects for next year, I have noticed a few peach trees from which the buds have fallen some. The apple trees seem to be full of buds, but we cannot tell what will happen next year. In fact, I am beginning to think that climatic conditions are the worst troubles we have to contend with. I don't dread the insects half as much as I do climate, frost, We did not have any hail-storms, but we had frost, and and hail-storms. a temperature twenty-six degrees below zero, which killed our peaches and many of our pears; in fact, the trees were so injured by this low temperature that their vitality was destroyed. Again, we were troubled with blight. I hear more of blight this year in Douglas county than ever before. Old trees that have been bearing for ten or fifteen years are blighted, and nearly all of the young trees are affected more or less. I set out 300 trees in 1896 and the following three years, and there are not 100 left. I have not. however, lost all my love for fruit-culture.

Mr. J. C. BECKLEY, president of the Johnson County Horticultural Society, was called for, and responded as follows:

Mr. President, to come right to the point, I will first take the pear, one of the best fruits we have in the United States. Seven years ago, at a meeting of this Society, in this very room, I made a statement in regard to my experiment with reference to blight, and as to the success I had had as far as I had gone at that time. Previous to 1897, nine years ago, I had spent considerable money in the pear business. I have been experimenting for thirty-eight years in Kansas on pear-blight, and up to that year I had spent a great deal of money and lost everything I had in the shape of a pear tree but one little bit of a stub.

My experimentation with salt brine is nothing more than the use of pure salt and water. I accidentally stumbled on to this preventive. I had occasion to empty some salt brine that was so strong that it carried an egg away up out of the liquid. It requires a pound of salt to a gallon of water to carry up an egg. In carrying that brine back to get it out of the way so that it would interfere with nothing and so that nothing would partake of it, I passed this little pear stub that I had cut off for two seasons. I poured a half-gallon of that brine on that little pear stub, thus doing what I had always been advised not to do—that is, to apply salt or brine to a fruittree, for the reason that it would surely kill it. So I concluded that it would surely kill it and I would pull it up and go out of the pear business, for I had spent all I could afford on a proposition of that kind. In April, about the time that the pear buds usually begin to swell and grow, I happened to pass along by this little pear tree, and lo, behold! this thing was leafing out as nice as could be. It began to grow, and I watched it carefully during that summer, and it grew up to where I could not reach the top of it. That pear tree is standing to-day in my yard, and a year ago bore a crop of pears, of the Duchess d'Angouleme variety. This year it set fruit but we had a terrific wind that blew it all off.

Yearly since spraying that little pear tree I have been setting out pear trees and spraying them with brine, until I have a lot of trees, and

have never lost one since I commenced such spraying. I lost all the trees that I did not spray. I have a few pear seedlings. One of them bore this season. They are thrifty and hearty, but up to year before last I did not spray them, because I wanted to find out whether a seedling would blight just as easily as a budded pear. They commenced blighting and I lost two of them, and then I went to spraying with brine. That shut off the blight all right. They have n't blighted since that and they are standing to-day thrifty and hearty. I have the Seckel, which is a very tender variety; it does not blight with me. I have the Triumph, the Suddarth, the Jewell, the Duchess, and the King Karl, and also the Kieffer. It is generally claimed that the Kieffer will not blight as bad as other varieties, but I have found very little, if any, difference.

Some may think I have these pear trees isolated from others that had blighted and which I did not spray. Two trees I had only twelve feet from trees I sprayed blighted and died to the ground, root and branch. The trees around those two were sprayed and were all right.

Some of you may try this and say: "Oh, well, we may just as well put this salt around the roots of the trees." Blight never struck a pear tree around the roots. Pear trees blight from the bud at the top and it runs down and kills the tree to the root. I have converts to my plan of spraying that have tried it and been successful.

In making use of this plan I would drench, not merely spray. People in my vicinity have used liquid sprayers, but their trees blighted. The trouble with the majority of people is that they do not make their brine strong enough. If you do not make it strong enough it will not do the work. I have made the salt so strong that it burned the buds and killed the trees along the 1st or 2d of March. There is a time when you must do this work, however. If you apply brine, weak or strong, to a tree in full leaf, it will die within twenty-four hours.

Our county horticultural society met at my place on September 7, several years ago. A Mr. Beauchamp was out there; a very fine, intelligent man, but it seemed that he lacked intelligence in regard to what I said about that pear tree. I took the members out and showed them the tree and told them what I had done and all about it. That was about five years after I had commenced. These people went home, and the next day Mr. Beauchamp went out and sprayed a small pear tree. The day following his pear tree was dead. Of course it was! I met him the next time I went to Olathe, and he said: "You told me to spray my pear tree with salt brine and I did it." I said: "And it is dead, is n't it?" Anybody that does n't know better than that ought not to have any pear trees. Fortunately, he did not give it up, but went to work at the proper time and sprayed other pear trees, and he informs me that he has never lost any of them and has never been troubled with the blight since.

I have tried that salt spray on some other trees besides pear trees. I believe it will work on a great many trees if it is applied at the proper time. That time is in early spring, before any sap starts up the tree. I advise every one in my hearing to try it in a small way. Don't try it in a large way until you are satisfied; but do try it in a small way. Make your brine strong enough; don't be afraid of that. It never has killed a pear tree that I have applied it to—and I don't use a sprayer. The tree should be thoroughly drenched. I mix my brine the day before I want to use it, so that the salt

will be sure to be all dissolved, so I will have the full strength. I hope some of you will try it, as I am sure it will satisfy you.

- S. J. Baldwin (from the first district): In Nemaha county we had as fine apples this year, especially in the early sorts, as we ever had, and I think there were more apples taken out of Nemaha county last fall than there ever has been at any time. I would more especially mention Yellow Transparent, Cooper's Early, Early Harvest, McIntosh Red, Northern Spy, and Rambo, as I know of several orchards in Nemaha county that were loaded as full as they could be with fine apples this year. We have one orchard of Winesaps that is not of large extent, but the owner shipped over 2000 bushels of fine Winesap apples. I don't want Nemaha county put in the list with some of the poorer counties of the state. I think the first district can hold up its head as still being in the fruit business. We had a fair crop of plums. I would mention especially the Wild Goose, the Burbank, the Wayland, and a number of others. I think our plum crop was fully fifty per cent. Strawberries we count as a full crop in our county.
 - [S. J. Baldwin died suddenly, April 17, 1906.]

MAJOR HOLSINGER: What did you do with your plums this year?

MR. BALDWIN: I have only a few hundred trees, and find a local demand for all I grow. Of those I raised, I sold the Wild Goose for \$1.50 a crate, the Burbank for \$2, and the Wayland for \$1.75. None sold for less than \$1.50 a crate.

J. L. WILLIAMS: Mr. President, I wrote the other day to the secretary of the American Pomological Society that I had lived in Kansas thirty-seven years and I never yet had made a failure of such fruits as I might have had growing at the time; that sometimes the crops were better than at other times—and I repeat that same to you. I have lived on one place now for four years. I had a reasonably fair crop of strawberries, not as good as I have sometimes had, because this was their third crop, but I had a very fair crop. There are but few raspberries on that place, but they yielded at least half a crop. Of blackberries, from almost an acre, I had a reasonably fair crop, excepting some which I had trimmed early in the winter, and those vines froze so they bore but little. Grapes were as full as they could be, and have been so every year since I have been there.

During every spring there are usually storms while the apples are in blossom, but that need not worry us. There are ten or fifteen or twenty times as many blossoms come out on all old apple trees as there are apples. They will not all bloom the same day; so if there is a heavy rainstorm to-day and all that have been fertilized get destroyed to-day there will be enough out to-morrow to more than make up for the loss of to-day.

- B. F. VAN ORSDOL: What were the climatic conditions at your place this spring, at the time of the blooming of your apple trees?
- J. L. WILLIAMS: It was nearly three weeks from the time that my apple trees commenced to bloom before they were done blooming, and in those three weeks there were surely three or four rain-storms and one or two frosts, but I don't remember that there were any extra bad storms or any extra heavy freezing during that time.

JOHN D. KNOX: To what extent do you trim your trees?

J. L. WILLIAMS: These were very old trees, and were all run together.

They were planted twenty-eight feet apart, and grown until the limbs are mixed in together, and I only trim such limbs as are partially dead, and such other limbs as have grown far out and bent down in the way of cultivation, leaving all the main, large limbs just wherever they might be. They have grown so long that the large limbs have spread away out and wound around each other. There are more or less water-sprouts that run up, and I take out thousands of them each year, but I leave enough of these water-sprouts to fill up the spaces. A great many water-sprouts have commenced to bear, while other limbs growing out fifteen or twenty feet from the body of the tree are dead. These water-sprouts, however, I keep trimmed so that they are not very long.

ANNUAL REPORT OF THE MANHATTAN HORTICULTURAL SOCIETY.

The past year has been one of vicissitudes and uncertainties to horticulturists of this society. The predictions set forth in reports at our April meeting, that apples were badly injured by the cold; peaches almost a total failure; cherries light; hardy raspberries in fair condition; blackberries damaged; grapes, some killed and some healthy, and strawberries fine, were all fully verified. Summer apples furnished half a crop and winter varieties about twenty per cent. Strawberries were the only fruit crop with a fair return. We take up the labors of another season, hoping and spraying that we may be more successful in the future.

The Manhattan Horticultural Society has elected the following officers for the year 1906: President, A. F. Waugh; First vice-president, A. J. Nicholson; second vice-president, S. H. Pearce; treasurer, Robt. Eastman; secretary, J. B. Haney.

J. B. Haney.

J. B. Haney.

SEDGWICK COUNTY HORTICULTURAL SOCIETY.

The society has made good progress during the year. It has doubled in membership and now has sixty members. The society meets in the winter in Wichita; during the summer months, in the orchards. Not a dull meeting during the year, and discussions have been heated and animated. G. W. Collings, president, F. E. Wickham, secretary, for 1906.

LETTER FROM MR. KELSEY.

SAGINAW, N. C., December 4, 1905.

To the Kansas State Horticultural Society:

Greetings! I am just home from making a road survey in a neighboring county, and find on my desk the program of your thirty-ninth annual meeting, and write to assure you that I keep the Society and my old horticultural friends in remembrance, hoping that you may have a very pleasant and profitable meeting.

The envelope enclosing program was postmarked November 14, the seventy-third anniversary of my birthday, and I learn from the reports of the Society that all of the charter members, except myself, have passed over to "the other side"; but my health is still good and I am able to do almost a man's work. I feel old only when I become reminiscent and recall the long-ago days when a "grafted apple tree" was a rare thing. There was one in my father's orchard; it had been brought by a friend from "away down East" many years before a railroad had pierced the apparently unconquerable wilderness of southwestern New York. It was, as we learned in after-years, an Early Harvest; but it was known to us and our neighbors only as the "grafted apple tree."

It was such an improvement over the hard, unsavory seedlings that it set me to thinking. And now, with the hope that it may save somé ambitious boy from such disappointment as befell me, I am tempted to tell you the following true story, which has never before been written. I learned that all apple seedlings might be grafted, and thought how easy for every farm to have its orchard of grafted apple trees at little more expense than for the inferior seedlings. There was my chance; I could grow and sell the trees. So, after much deliberation, I decided to be a nurseryman. My ambition was to get all of the best varieties; start a model orchard on the home farm; get the neighbors and all the country to planting grafted trees, which they would, of course, buy of me; and I would become a great nurseryman, a benefactor to the country, and make my fortune.

It must have been sixty-one or sixty-two years ago that fall when I asked for a small piece of ground on which to begin my nursery work. The ground was promised, and my spare time was devoted to collecting apple seeds. They were scarce; but I succeeded in getting about a quart of bright, plump seed. How beautiful they looked. I could almost see the trees loaded with choicest fruit. The ground was well prepared, the seed planted, and all ready to grow. But, alas! coming home one day, I saw the field had been plowed, and my nursery was all plowed over with the rest, and ruined. It was a crushing blow. The old farm, which had been the center of my world, had no more attractions for me; indeed, I think now that if the whole state of New York had then been offered me for twenty-five cents I should have rejected the offer. I was told that they really did not mean to plow up my ground. but it was right in the way and run over thoughtlessly; I should have more ground next fall, if I wanted it, and would lose but one year; but the excuse only added weight to the blow, and when my benumbed senses were able to do a little thinking, my mother was told that I would do nothing more towards starting my nursery there, but when I became twenty-one I would go West and be a nurseryman; and I kept my word. For the next nine or ten years I worked on the farm during the summer and attended or taught school through the winter, but I planted no more apple seed; and when the long years of minority were passed I went west and found work with F. K. Phœnix, who was then just starting the Bloomington, Ill., nurseries.

Since then I have had many disappointments; but no blow ever fell so heavily as the destruction of my first nursery. I want to say to the Kansas State Horticultural Society, give the boys a chance.

Yours faithfully, S. T. KELSEY.

Ex-President Wellhouse: I have listened to these reports from the various districts with intense interest, not because they are optimistic nor because they are pessimistic, but because they call my attention to the early

days. I planted my first orchard in Kansas in 1860 and everybody says that was the dryest year we ever had. I have been planting more or less ever since. I made the assertion along about that time-of course, I was called a crank then as. I am now, but that did n't matter much then and don't now-but I made the statement then that there was not a quarter-section of cultivatable land in the state of Kansas that would not grow fruit, and I say that yet. From these reports and from a lot of other talk around, I hear of men who are going to cut down their apple trees: "We have trees that ought to have been cut down long ago and some have been cut down." That is all right; but our first trees in Kansas commenced bearing along in the latter part of the '60's, and there has not been a year since then that we have not grown thousands of bushels of apples, not one single year. The last three years have been discouraging. The last two years we have had failures. My pocketbook is becoming fearfully flat. I do not know sometimes where I am going to get money to run things; but the apple crops are coming. We had a crop this year; and I find a whole lot of people that have apples even this year. Some of the greatest stories I have ever heard about apple trees I have heard since I came to this meeting. Somebody told me that a man here has some trees which each yielded him from fifty to sixty dollars' worth of fruit a year. And yet our fellows are talking about cutting down their trees! A good apple tree is the grandest thing we ever had. It is good to look at, and is a money-maker, too. These young fellows are throwing me clear into the shade. I have grown over a half-million bushels of apples, and I have grown fine apples, and I do n't feel like cutting the trees down yet. Although our crop this year is very scattering. yet these plates of fine apples on exhibition here are encouraging. It is the business of you young fellows to find out why there are apples here and why there are none there; why they succeed in this orchard and fail in that. I am ashamed of our crop this year. We had a lot of apples, and we expected a whole lot more, but we did n't get them. It is your business to find out why these apples grow in one county and why they do n't grow in another county.

A MEMBER: What is your opinion?

JUDGE WELLHOUSE: My opinion is this, that the failures in the last three years have been from two causes: One is the unfavorable condition of the weather during blooming-time; the other is that we have had more rains in the last three years than we have ever had in any previous three years. The rains have soaked the ground, and if I tell you it has killed thousands and thousands of trees in our orchards you may not believe me, but it is a fact. It has kept the roots of the apple trees so completely soaked that they have lost their vitality. When I commenced planting apple trees here, I told the folks that our soil was so constituted, that our land was underlaid with limestone and was full of seams, and that it was so thoroughly underdrained that we needed no underdrainage; but the wet weather has killed more trees for me than all other things put together. In the last three years the extreme wet weather and the unfavorable conditions during blooming-time have kept us from having more fruit than we would know what to do with. We will not have such rains every year, and we will have lots of fruit. I say again that there is not a quarter-section of land in Kansas that will not grow fruit if you study to know what to plant and how to properly care for it. I stand by that statement.

PRESIDENT HOLSINGER: We have with us to-day some people who do grow fruit. Last summer while in Wichita I visited some orchards in that neighborhood, and we found those orchardists had grown large crops of fruit the preceding year, and I understand they have a good crop this year. I call on Mr. E. G. Hoover, one of the young men of this Society, who knows how to grow fruit.

E. G. HOOVER: Mr. Wellhouse opened up a subject which I wanted to bring before this Society, and before we are through I will talk to you about the Grimes Golden apples that came off a tree that is thirty-two years old, and which has, in the seven years we have managed the orchard, paid us \$328 in cash. In 1899 this tree grew fifty-five bushels of apples which were marketed for \$1 per bushel; we also got eight bushels of culls which sold for 25 cents per bushel. In 1900 we got eighteen bushels of apples which sold at \$1.67, or \$5 per barrel, and three bushels of culls at 75 cents. In 1901 we got forty-five bushels of apples at \$1.25, or \$56.85, besides some culls. In 1902 we got eight bushels at \$1.40, or \$11.20, and two bushels of culls at 25 cents. In 1903 we got forty-two bushels, which brought us \$65, and fifteen bushels of culls. In 1905 we had thirty-eight bushels, of which I am selling twenty boxes at \$2 and eighteen boxes at \$1.50. This tree is thirty-two years old, and you could not set it in this room to save your life. You people have been here a long while and made a success of it, but I have made a success in the three years that you have failed. Last year (1905) we had a forty-five-per-cent. crop. A year ago (1904) we had a ninety-per-cent. crop, and that was in the wettest year we ever had.

JUDGE WELLHOUSE: What kind of soil have you?

MR. HOOVER: We have a sandy soil.

JUDGE WELLHOUSE: Don't that account for your success in the last year or two? Our soil is a very stiff clay.

Mr. Hoover: If that accounts for it, I will name a young man who makes a success of it who has heavy, black ground—George A. Blair. Last year he had a 40-per-cent. crop, and year before last he had a full crop, 100 per cent. He takes care of his orchard and prunes it and keeps it in shape. If you would give your orchard the same care you give your Thoroughbred horses, you would get the results. I think the only setback you will get will be the same setback Mr. Robison gets when he loses a fine colt once in a while. There is nothing difficult about it. I think it is merely the degree of attention and care you give your orchard. I have 265 acres in orchard, 100 acres bearing; and I have trees two years set that I do not believe can be beaten for growth by any orchard in the state of Kansas. I have a Winesap that measures eleven feet high that has been set only two years.

PRESIDENT HOLSINGER: Tell us about your cultivation.

MR. HOOVER: We use a cutaway harrow, and we cultivate five times. I am going to use a cutaway harrow this year in February. I am going to chop that orchard up both ways in February, and I am going to get it chopped up enough so I can take a spring-tooth harrow, with twenty-six teeth in it, so it will cover half-way between the trees, and I am going to use that and keep it continually going through that orchard from daylight to dark until the 20th of July. Then I will quit. I want all the grass after that time

that I can get. On the young trees we work both ways in the early spring. On the old trees we work both ways and corner ways, too. It is advisable to stop cultivation about the 20th to the 25th of July, because if you carry it on later you will find your trees freeze badly, if you have a severe winter.

COL. J. W. ROBISON: I believe you use a double disk, do you not?

MR. HOOVER; Yes, sir, a double-action cutaway.

COLONEL ROBISON: Describe that to us, will you?

MR. HOOVER: We take an old-fashioned disk, and take another and put in front of the first one. The rear one then splits between the furrows of the front one; but of course they must be adjusted so they will not cut in the same furrow. This is easily done, however.

JUDGE WELLHOUSE: How many horses do you use on it?

MR. HOOVER: Four horses. One disk alone will pull considerably heavier in the ground than this double disk will, for the simple reason that when you set it sloping enough to turn the dirt over it goes clear to the center, and it will kill the horses any time in that hot orchard. With this double-action disk there is no weight on the horses' necks excepting at the turn, and we have remedied even that.

MR. VAN ORSDOL: What were your climatic conditions at the time of blooming?

MR. HOOVER: Some of our horticulturists down there say we had a light frost, but I never saw any of it. I guess some of them did have it, because they did n't have any apples, and that is what they attributed it to. During the time most of the bloom was out, we had a wind from the southwest that tended a good deal to blow the sand; it was something fierce. We were spraying at the time, and we could get off a hundred yards from the tree and drown it spraying with the wind. The southwest side of the trees suffered principally; they did n't leaf out well on that side. We had no rains worth mention during the spraying or during the blooming-time. I noticed, when we were going through during blooming-time, that when the bloom first came out lots of the stems were beginning to turn slighly yellow. I think this was from the same cause Mr. Wellhouse mentions—that we had too wet a season last year.

PRESIDENT HOLSINGER: How high are your orchard lands above the water of the Arkansas river?

Mr. Hoover: Well, we have an underflow on an average of about seven feet from the surface.

JUDGE WELLHOUSE: I infer from your statement that the Grimes Golden is your most profitable apple?

MR. HOOVER: No, sir; the Missouri Pippin is the most profitable apple that we grow.

JUDGE WELLHOUSE: You can make more money out of it?
MR. HOOVER: Yes, sir; the Missouri Pippin never fails.

JUDGE WELLHOUSE: How about the Jonathan?

MR. HOOVER: I have no success with it.

A MEMBER: How old are your Missouri Pippin trees?

MR. HOOVER: We have some thirty-two years old, and they are still

bearing. Our best-yielding trees this year and the preceding two years have been the trees from twenty to thirty-two years old.

A MEMBER: Did you have much scab on your Missouri Pippins?

Mr. Hoover: A year ago last spring I first noticed scab in our orchard, and it entirely took the fruit on twenty acres that had been the pride of the place. I never saw the like for scab. This was on Winesaps. The Missouri Pippin was almost as bad in spots. I went after that and sprayed thoroughly twice, and this year we could not find a scabby apple in that orchard. I sprayed Winesaps twice, thoroughly, with Bordeaux mixture, a good, strong solution. I gave it about as Mr. Beckley did with his salt solution—almost as strong as I could make it.

A MEMBER: What proportion did you use?

MR. HOOVER: I used about double the dose used before the bloom came—double the strength. Last year was my first in this spraying, although I have studied it considerably, and these Winesaps affected me so that I thought that I would kill the trees or cure the scab. I wasn't going to monkey with them again. I was so thoroughly disgusted with their condition that I was determined to kill or cure.

COLONEL ROBISON: Does your orchard overflow with high water?

Mr. HOOVER: No, sir. When the river gets out of its banks, the water comes up from below in a few spots, but it does not overflow.

JUDGE WELLHOUSE: Have you had the water come near the surface and stand any length of time?

MR. HOOVER: Oh, yes; and the Missouri Pippin wont stand it any time at all. The Ben Davis stands it better than any of them.

MRS. CORA WELLHOUSE BULLARD: I would like to say that I wish I could believe with Mr. Hoover that clean cultivation and pruning were the panacea for all the orchard ills, but we have close to us an 800-acre orchard, upon which thousands and thousands of dollars have been expended in pruning and clean cultivation. The orchard is possibly nine years old, and the harvest this year was something less than 100 bushels. So there is something wrong about clean cultivation and pruning on our soil. [This orchard is too young to expect much.]

J. W. Robison: I had the pleasure of going through these Wichita orchards last spring, and I learned a number of important lessons. I had been under the impression before that sandy land, especially quite sandy land, with no subsoil, was not an ideal soil at all, but all such ideas were dispelled during my visit there. That soil is certainly an ideal soil for the growth of apples and other fruit. It is a dark, sandy loam, and is of such texture that the capillary attraction will bring up from that underflow six to eight feet down a very considerable amount of moisture. The apple-tree roots undoubtedly go clear down as far as the water will lead them. I did not see any of them dug up, but I think they extended to the water-level, which, in ordinary times, would be about the same level, but during times of rain or high water in the river would be higher, and the roots would, perhaps, reach the water itself. These trees were in a very thrifty condition, and it was a very interesting sight.

I want to say a word about the disk-harrow, which took my eye not only for orchard purposes but as a tool to do any work required of a disk. It

was apparently an ordinary disk, with an iron frame extending around past the ends of the first disk and back to the rear, and having a second disk adjusted to it similar to the first. The disk wheels were not very large, and the rear ones were set so they cut just between each of the first disk wheels. so that when they went over it with four horses the ground looked like a garden. It was all turned over, and some of it was turned twice. It was left in an ideal condition for a dust mulch and held the moisture. cultivated not only both ways, but diagonally, and I found that to be a prevalent custom down there, so that all the space on every side of the trees was at some time in the year worked up by that disk. I think I can recommend that style of disk to anybody who is going to buy a new one. Probably they can afford to trade their old ones on new ones anyway. It does not run so heavy as you might think. That orchard was the best tilled of any I have ever seen. There may be some soils that will not bear such cultivation, but I have not seen any yet of the black soils that I have passed over that have been overcultivated. It is possible, but not very probable.

MRS. CORA WELLHOUSE BULLARD: This orchard near us has been cultivated as well as an erchard could be cultivated. A great deal of money has been spent upon cultivation and pruning, and the apples would probably cost the owner, were they to have a full crop, something like ten dollars a barrel at the present prices. The trees are about nine years old.

J. W. Robison: Those trees are not up to the age of fruitfulness yet. The Missouri Pippin ought to bear well at that age. I have tried both ways and I never got full compensation for all the cultivation I have done. I know last year was one of the worst years I have had since I have been in Kansas, and I could not cultivate then, because twice the water went up six or eight feet on the ground through the orchard. We did not get much of a crop, but the weeds grew magnificently.

FRED. WELLHOUSE: Have you noticed what effect capillary attraction has in drawing the moisture eight feet? Will it draw it up that far?

J. W. Robison: In this sandy-loam soil in which they were working, the disk cut probably four or five inches deep, and when the disk turned it over, all of that ground a quarter of an inch below the surface was moist, and I believe it was from the good cultivation, and the moisture below. The trees looked as if it was being carried to the very tip-top. The last two years have changed my opinion very considerably with reference to this matter.

MR. STAUFFER: I live in Sumner county, in the Arkansas valley; it is simply the garden spot of the earth. I live only three or four miles from the river; I do not happen to be lucky and live on bottom land; but I find I can raise apples, and that the trees will grow on my land almost as well, but about the time the apples begin to ripen they fall off. The climate is such and affects the trees so that the apple does not thoroughly ripen, and, consequently, I can raise a fall apple only, but not a winter apple. I can see the difference between the ground along the Arkansas river and mine. While they have water within six or eight feet, my ground is of such a nature that I have to go from 50 to 100 feet for water, and I think perhaps that is the main reason why the trees do not do as well, and the reason that the apple does not ripen so it will keep. I do not cultivate as well as some of these gentlemen say they do, but I do a reasonably fair job.

- F. L. DIXON: All the discussion we have had on apples only goes to prove that the more we learn the less we know. I raise some apples, and I am interested in apples. I have apple trees on sandy land, and on heavy land, and I have cultivated, and have not cultivated, and I have sprayed, and have not sprayed. I have neighbors that did not spray, and they did not have any apples; and I had apples in one orchard and did not have any in the other. I had a hail-storm that came along and knocked off all the blooms that were out. My conditions were such that I can prove anything you want this year. There was another orchard which we sprayed thoroughly, and half of it was well cultivated. We never prune. I want my apples close to the ground. I do not want to climb a ladder for apples, and I do not believe in pruning. Where we cultivated there were about twice as many apples as where we did not cultivate.
- J. W. Robison: I would like to say that there are different kinds of pruning done by pruners. Some prune up. Some prune down. It has been reiterated here that a saw should rarely be used in an orchard. Take a young orchard, and it is my epinion that by pruning it thoroughly and scientifically you can prune it up or down, and you may make your apples grow near the ground, or make them grow near the sun. I think that skilful pruning is the taking off of the young sprouts and at a single glance being able to know how to balance the tree, not only as to what it is today, but what it will be two or three years hence with ordinary growth.

A MEMBER: What time of year would you prune?

- J. W. ROBISON: A good many years ago, when I was a better orchardist than I am now, and I had to go over my orchards to keep the round-headed borer out of the roots, I trimmed every time I went out with a knife I took out for that purpose. I have frequently gone up a tree and picked out two limbs, one of which must come off, and the problem to determine was, which one. I would recommend that this be done during the growing season.
 - F. L. DIXON: Did you do all that work yourself, or hire it done?
- J. W. ROBISON: I did most of it myself in a 100-acre orchard. I could not find a man I was willing to trust with that knife. I could not find one but what would very frequently miss borers when they were hatching. It was a rare thing to find a man who could be trusted to do anything of that sort.

PRESIDENT HOLSINGER: I am reminded that we have some visiting fruitgrowers with us this evening, and I call upon Doctor Schermerhorn, of Illinois, for a few remarks.

DOCTOR SCHERMERHORN: I am certainly very glad to be with you to-day. I have known your president and secretary and a number of the members of the Kansas Society for a number of years. I have been making some notes of your talks and experiences, which are very interesting to me. Some of them, I must say, seem very ridiculous to me, but probably the conditions here are such as I cannot appreciate. I realize that conditions vary very largely, but that salt proposition nearly took me off my chair. I do hope there is something in it. We have had the salt proposition in our state for bitter rot, and when anybody talks about salt over there we all smile. Our losses in 1902 in three counties were \$1,500,000 from bitter rot. The losses from bitter rot that year would not compare with the losses from the blue

scab fungus of that year, and much less with this year. We have a state senator who had heard somebody say something about emptying fish brine around the trees to cure bitter rot; so he made an application around some trees, and spread it broadcast over the state that it would surely kill bitter rot. There are some less trees in Illinois now than there were before it was tried. I am very glad to be with you, and to meet the members of this Society.

PRESIDENT HOLSINGER: We have with us another gentleman of more than national reputation in horticulture; a gentleman as well qualified in horticultural work as any man alive, not only in this country, but in the world. I will call upon Mr. Van Houten, of Iowa, who was for years the secretary of the horticultural society of that great state, and who has traveled the world around in search of information on subjects of interest to horticulturists.

GEO. H. VAN HOUTEN: It was suggested by your president that I was secretary of the Iowa state society. I was secretary at two different times, and for several years each time. It has been suggested that I have had rather a wider field of observation than some of you, which is probably true, but it does not give a man the advantage that you might suppose. The man who goes away on these long journeys comes back with his pocket empty, and his head full of notions that are not available either for cash or to interest the people. He knows some things that interest him, and that are true, too, that he does not dare to tell because the people would not believe. For instance, take the fish stories of Alaska. If I should tell them the people would not believe me, and the same is true about some horticultural stories that I might tell; hence, I must be very careful in telling about the wonderful things in horticulture I see away from home. Howeyer. I shall not at this time interfere with your regular program, but may perhaps at a later hour tell you of some of the interesting things I have seen on some of my trips. I want to express my pleasure at meeting with you and my appreciation of this honor of being called upon to face this magnificent body of horticulturists.

PRESIDENT HOLSINGER: I desire to introduce a Missourian; one who does more talking about fruit and grows less fruit than any other horticulturist I know of. I refer to our friend, Mr. Irwin.

J. M. IRWIN (editor of *Fruit Grower*): There is this difference between some of the members of this Society and myself, I have never pretended to grow any fruit. I am from Missouri, it is true, but I am as close to the Kansas border line as I could get. I am glad to be with you, but I have nothing of special interest to say at this time.

PRESIDENT HOLSINGER: I see in the audience a gentleman who has been very successful in raising fruit this year, and who has taken fruits to our different meetings to exhibit. I refer to the president of the Southwestern Horticultural Society, Mr. F. P. Spencer, of Randolph, Iowa.

F. P. SPENCER: If it is your object to show what kind of people we have in Iowa, I am willing. If you expect me to get up and talk, I must disappoint you. While our fruit results in Iowa this year were rather spotted, I succeeded in raising a few apples, and have been showing them at some of the horticultural meetings, and expect to show a few here. I am very glad, indeed, to meet with the Kansas State Horticultural Society.

Adjourned to 7:30 P. M.

Evening Session.

TUESDAY, December 26, 1905.

President Holsinger called the Society to order at 7:30 P. M.

Prayer was offered by Mr. F. L. Kenoyer.

PRESIDENT HOLSINGER: It is with pleasure that I have to announce that we have something in the form of a surprise to-night for this Society. I have been a member of this Society for some thirty years, and this is the first time I have ever seen a live governor within our rooms. I take pleasure in introducing to you one who needs no introduction, who is known to us all, whom we all appreciate and love, Governor Hoch, of Kansas.

GOVERNOR HOCH'S ADDRESS OF WELCOME.

Mr. President and Friends of the Horticultural Society: I wonder if there have been any dead governors before you. (Laughter.) I have just come down from a meeting of the Kansas State Teachers' Association, where I have been talking for a little while, and you may get some conception of the strenuous life I am leading when I tell you that, immediately at the conclusion of the minute and a half I shall talk to you, I have another engagement of a similar character. This is a regular thing, however. Indeed. after issuing a proclamation of thanksgiving, urging every citizen of the state to cease his usual vocation and devote the day to meditation upon things in harmony with the thanksgiving occasion, I hied myself 200 miles to engage in my usual vocation of making speeches. Some one wonders how I stand all of this business, but I assure you that it is no trouble for me, though it is probably a good deal of trouble for the audiences. I am reminded of another Kentuckian, Senator Beck, who was always talking. One day another senator got up and said: "Mr. President, when does the senator from Kentucky rest his brain?" Senator Davis, who weighed 400 pounds and was jolly and good-natured, arose and said: "The senator from Kentucky rests his brain when he is talking." (Laughter.)

I bring you no prepared message to-night. I am in the habit of dropping

I bring you no prepared message to-night. I am in the habit of dropping in here to see the exhibitions of fruit, and I thought I would like to drop in to-night and see the fruit-growers. I never have been in the business much myself, and I do not know much about it from practical experience. I quite agree with Mark Twain, who said the best way to raise strawberries was with a spoon.

But, in common with all good citizens, I am deeply interested in the great industry in which you are engaged. I was proud of the Kansas horticultural exhibit at the World's Fair. I do not know whether it was because I saw everything Kansas and Kansan through enlarged lenses, or whether it was an actual fact, as I believe it was, but we had the best horticultural exhibit at St. Louis. (Applause.) At any rate I am going to insist that that is a fact, and especially when I am out of Kansas. I would not give much for a man who is not proud of his state. My opinion is that when one is not proud of his town, or his city, or his state, he ought to leave it. (Applause.) I think that is what one might call sanctified pride and legitimate selfishness. I think the Bible states the theory when it says a man who does not take care of his family is worse than an infidel. He ought to think more of his own family than anyody else's family (laughter), and he ought to think more of his town than any other town, more of his county than any

other county, more of his state than any other state, and he ought to believe that this is the best nation on earth. (Applause.) If he does not believe these things he is not an ideal citizen.

This is straight horticulture that I am talking, you will notice. (Laughter.) "I would not marry the best woman in the world," said a crabbed, crusty old bachelor. Robert McIntyre, who at that time lived in Denver, replied: "I know you would not. You could not. She is already married, and she lives in Denver." McIntyre was absolutely right about that, with one exception—she lives in Topeka.

So when I am abroad I say that Kansas had the greatest and best horticultural display at the World's Fair, and I really believe it. I have told it so much that I have come to believe it myself. (Laughter.) Who would not be proud of it? There is no industry, in my opinion, that has had more vicissitudes and more difficulties to encounter and overcome than the horticultural industry in Kansas. You know pioneer people are nearly all experimenters. There are about 1,600,000 of us here now, and most of us came here to do something that we had never done before. An army of old soldiers, who for four years had followed the flag and offered their lives on the altar of their country, came to Kansas to take homesteads and to engage in farming-men who had never farmed before and who knew nothing about farming-and a very large per cent. of our population are, as I say, experimenters here. We tried to make a great wheat-field out of eastern Kansas, and we tried to make a great corn-field out of western Kansas, and we failed in both, and it took us more than a quarter of a century to find out what we could do successfully in Kansas. But we never let up trying. We were stayers. We were not quitters. If you take the matter of horticulture, we planted in Kansas every conceivable kind of tree that grows anywhere on earth, and they are not all alive to-night. (Laughter.) I verily believe that I have planted several hundred dollars' worth of different kinds of evergreens on my lawn down yonder in the little town of Marion, and I have nothing left now but a few common cedars. I have looked at all these beautiful books that fruit-tree pedlers have brought around, and I have bought more fruit-trees from pictures than anybody else in Kansas. I have planted them and I have cultivated them, but very seldom indeed did the fruit that came off of these trees in any way measure up to the pictures.

We have had all kinds of experiences in Kansas, but out of it all we have grown to be a great horticultural state—the greatest in the Union. It is no longer an experiment with us. We know now what we can raise and what we cannot raise. We have succeeded.

I had a surprise a year ago when I went out to Reno county and took an all-day ride around through the orchards of that county. I thought I knew something about Kansas until I got into those orchards. There were trees there that bore forty bushels—that is what the men told me out there, and they are all truthful gentlemen. (Laughter.) My good, old friend, Judge Wellhouse, laughs at that. Of course! He lives in eastern Kansas. I live in western Kansas, and I am standing up to-night particularly for western Kansas in the orchard business. Certainly there were great orchards out in Reno county—trees loaded down with splendid fruit. I think it is not at all extravagant to say there were 400 car-loads of fruit shipped from Hutchin-

son. I think the Arkansas valley one of these days is simply going to be a continuation of Reno county in the fruit line. (Applause.)

As I say, we have passed the experimental stage, not only in agriculture, not only in the other elements of state building, but we have passed it in horticulture, and now we know what we can do; and when we have our next World's Fair, which will be in Topeka (applause), we will show the world what we can do in raising fruit.

I am here to-night without any prepared speech, talking upon the impulse of the moment, glad to see my old friend, Wellhouse, for it revives some delightful memories of the great legislative session of 1889. I shall never forget when at the close of that session I arose and introduced a resolution that inasmuch as the house had tolerated the gentleman from Leavenworth for fifty days, it was as little as he could do to ship in there by morning a barrel of apples—and in the morning two barrels were there. (Laughter.) That was my introduction to that splendid representative of the horticultural interests of this state, my friend, Judge Wellhouse. Long may he live! (Applause.)

I welcome you here to-night as men engaged in a great business, a business which I think has something in it more than money. You know I do not like to think of a great red apple simply for the money that is in it. I like to think of it for the beauty that is in it, and for the health that is in it, which is more than money. I am glad to welcome you. I hope your session here may be entirely pleasant, and I want to say to you—it does not look like any of you need it—that I have some blank pardons filled out up-stairs ready for you. (Laughter.) I wish it might be possible that you as a body could come out to my home during your stay here and see us in our home. It is your home. It belongs to the state. We are simply there for about four years (applause)—may be not so long. (Laughter.)

I wish to add a word, if your secretary will put his thumbs in his ears. I fear that you gentlemen do not know how much you owe to your secretary. I do know something about it. Faithful, careful, industrious, persistent, all the time at it, he is here tending to the business of the horticultural interests of Kansas. He has not always had the sympathy of those in authority that he should have had; he has not always had the help that he should have had; but in spite of it all he has been faithful to your interests and to the interests of the fruit-growers of this state. (Applause.) I desire to say to you that I have had no conversation with the gentleman, and he has not put me up to this, either. This is entirely unexpected to him, but it is true. You have a most efficient, a most faithful and most worthy secretary.

I am glad to be here, and if you would tap some of those apples I would be more glad. Come to see me. I should be glad to see you singly or collectively. (Applause.)

RESPONSE OF COLONEL ROBISON.

Mr. Hoch, the Honorable Governor of the greatest state in the Union: I have just been informed that I am to reply to your welcome, and must make an address as impromptu as your own; but it ought to be easy to make a flowery speech to a horticultural meeting. I am here and you are here as representatives of a great calling in this state; a calling that has done more to make Kansas worth while living in, worth staying in, worth raising a

family in, and gone farther to make ideal wives and ideal husbands, probably, than any other calling in the state. (Applause.) The wheat grower usually grows wheat for the money that is in it. The raiser of cattle, hogs and other stock grows largely for the money there is in it. It is a business proposition wholly and solely with them. But the horticulturists of this state and of other states usually engage in that vocation because of a love of nature. He pries into the secrets of nature to know what can be done by application or manipulation of the soil, or by careful fertilizing of the bloom, or by transporting from all parts of the world to our own country, and by testing the fruits and the flowers of the balance of the world. I might say that no people have done more in that line than the nephews of Uncle Sam. They have not only searched the world over for plants and flowers and shrubs, but they have searched the world over for parasites that might destroy the injurious insects that might interfere with the agriculturist and the horticulturist.

Only a short time ago an insect appeared in the cotton-fields of the South that committed great ravages, and threatened almost to exterminate the growth of that plant so needful in the world's affairs. Uncle Sam sent his agents over the world to search for an enemy of this insect. They found it in a little, insignificent spider form and brought it there, and it has destroyed this enemy of the cotton by the millions, making it profitable to continue to raise cotton there.

When the scale appeared on the fruits of California, he sent his skilled agents away, under the administration and direction of our secretary of agriculture, and brought the enemies that would destroy that fungoid growth. It was my pleasure to spend some time in California last fall, and to see orchards of many acres, practically ruined three years ago, that were to-day bearing a fair crop of fruit; they had been regenerated by having their enemies destroyed. We have skilled horticulturists like the wizard of California [Burbank], who created a new form of potato more than forty years ago, and then went to improving flowers, for the love he had for plants. He improved the various berries, tried cross-fertilization of berries that we had hardly supposed practicable before; but he has accomplished the purpose that produced a cross between the strawberry and the blackberry. bearing a crop of 300 to 400 bushels to the acre of most delicious berries. Another agent of the government found a small orange tree way down across the gulf in the southern end of the western hemisphere that was devoid of seed, but of excellent quality and flavor, and from that one little tree has grown the [navel] orange trees that now cover the lower end of that section of the country. This same principle applies to the cereals. The skilled man is growing grain to-day for the various purposes, just as we grow cattle and horses for various uses. He is growing grain with a feed value; he is growing grain with a starch value; he is growing grain that will resist the hot winds of certain parts of our country, and grain that will ripen and mature in all its beauty up as near the pole as possible.

This is the work of the horticulturist and agriculturist and the skilled men of Uncle Sam who are studying nature. We are nature's children. It is our duty and our privilege, and it ought to be our life and ambition, to delve as deeply as possible into the secrets of nature, to ascertain what may be beneficial to our people. May this work go on; may the national authorities improve and continue it; may they go further out into the eastern continent

and get wheats that will grow beyond the Kansas lines in the West. The border of the wheat-growing district has been moved at least fifty miles westward in the last five years. If that continues, we will soon have no border line.

We have proved the benefit of imported articles. Some countries can produce and do produce better than we can. I am very sorry to see that; for our great beet-fields we have to import practically all the seed. The people in France and Germany have grown these for years, and this long experience, together with the cheapness of their labor, makes it profitable for us to get our seed there. And yet there is no soil in all Europe that equals our Arkansas valley for beet growing. The Colorado growers are working down this way with the stream and building their mills and buying their farms, and building their irrigating plants so they may extend the beet-fields.

The horticulturists have been in the front ranks. There is probably not a single apple in general cultivation to-day that was in general cultivation a half-century ago. In my early recollection the average orchard did not have a grafted tree in it. Now the average orchard has nothing but grafted trees. I remember well seeing the trees that were planted by old Johnnie Apple-seed in Indiana and eastern Illinois. I remember the loads of seedlings and sprouts that were carried and distributed about that country. Some of them produced very fair apples, but nothing to compare with the apples we are growing to-day. In handling our new production of apples I have sometimes wondered how Adam was at all tempted by the old apple that grew in his time. I know that you Adams here would not feel any temptation for that kind of fruit. It would take a brighter red and a higher flavor even to make you think of temptation.

EDWIN TAYLOR: Not if Eve handed it out?

COLONEL ROBISON: That came from Wyandotte county. We cannot say very much about the conditions that exist there. There was only one Eve for Adam, while there are a great many for the horticulturists of Kansas.

We will hear about "the ideal wife." The ideal wife of the garden of Eden did not compare with the ideal wife of to-day. In the very early days they did not have the sewing-machine—they did not need it—and we do not know what they did have. The records are very scant on just what they had, and with reference to what they subsisted on. Apples were rather a thin diet alone. But just think of the improvements down along the stream of time, from Eve in that isolated garden down to the present time, and then think of what we have done in the last half-century! There has been more advancement in the last half-century than in all the ages that have gone before. In no part of the last century has there been as much advancement of real science and in real benefit to the most people as in the last ten years.

We thank you, Governor Hoch, for appearing before us this evening. We hope you will come in often and view this display that we have here, gotten up by this Society for the international exposition at St. Louis. We are glad to have you with us, and we are glad to be a part of the great state of which you are governor. (Applause.)

G. A. BLAIR: Governor Hoch, I am one of the fortunate residents of the Arkansas valley, on which you have this evening pronounced such a truthful encomium. In behalf of the Arkansas Valley Horticultural Society and the Sedgwick County Horticultural Society, I desire to present to you this plate of apples, raised in this valley of which you have spoken so highly.

GOVERNOR HOCH: I thank you. I desire to call your attention, ladies and gentlemen, to these apples. It is not often that I feel called upon to substantiate the veracity of my remarks, but in proof of all I have said, I want to direct your particular attention to this plate of apples from the Arkansas valley. I thank you very much for these apples.

PRESIDENT HOLSINGER: The first paper on our program for this evening is "The Ideal Wife for a Practical Horticulturist."

THE IDEAL WIFE FOR A PRACTICAL HORTICULTURIST.

By Mrs. Fannie Holsinger, Rosedale, Kan.

What does "ideal" mean? Mr. Webster's definition of the word is: "An imaginary standard of excellence, not real." An ideal wife then is something imaginary; something we have not reached. Now, how can I tell of something that does not exist, save in the dim outline of unrealized expectations? I have seen many women who are climbing upward, onward, to their ideals, who have set their mark so high that they have not yet reached it; for those who reach their ideals do not have far to go and will amount to little in this world save in their own estimation. In our efforts to reach our ideals, we have discovered that, like the toiler up the hill of science, "the top of one mountain seems but the foot of another"; that when we have reached the solution of one important problem of life another immediately confronts us, and thus we must continue upward and onward until we have reached the hill crest in the land of perfection—the mount of God.

The first horticulturists of whom we have any record had an ideal home. Our first parents were given an ideal garden in which to work; a garden which had reached "the highest standard of excellence." Milton speaks of them as

"The loveliest pair
That ever since in love's embraces met."

And their labor was not burdensome, for he adds:

"After no more toil
Of their sweet gardening labor than sufficed
To recommend cool zephyr and make ease
More easy, wholesome thirst and appetite
More grateful, to their summer fruits they fell."

But even they, amid such delightful surroundings, were not satisfied; they desired more knowledge, and they had to suffer because they had not learned the lesson of obedience to law—the first prohibitory law ever enacted of which we have any knowledge. God in His love and wisdom said: "Let them have dominion." He made them joint rulers, and they did not have to waste time letting the weeds grow while defining the sphere of each other. While they were one in spirit, each had an individuality apart from the other, which they used to develop their industries while they remained in the ideal state. We are told that God created Eve as "an helpmeet" for Adam;

that is suitable and fitting; a companion, a fellow laborer. Some one has said of the creation of Eve:

"From near his heart the rib He took,
To show the favor should be prized;
Not from the head, to overlook,
Nor from the feet, to be despised."

President Roosevelt, whom we delight to honor because of the stand he has taken for civic righteousness, said: "The standard of the nation is set in its homes."

The ideal wife for a horticulturist will be, first, a home-maker. She knows that the home is the unit of the nation, and there is no work that requires greater skill or more patience than that of creating and developing the place of all places on earth, that blessed foretaste of heaven, which we call home.

Women have not all the same calling in life, and some must take their places in the commercial world, that they may provide for those depending upon them; to such we will give due praise. She will help her husband to care for the fruit in the busy season, if she can be spared from her household cares and he needs her assistance, as is often the case when help cannot be obtained and the fruit must be gathered at once or perish.

I should like to tell what I think the husband of an ideal wife should do when she has two or three days' work to do in one, but I am not ordained to speak on this subject. I think, however, it would have been very nice if our honored secretary, in making up this spledid program of ideals, had added one more subject to the list, viz.: "The Ideal Husband for a Practical Housekeeper," but perhaps that will come later.

The ideal wife was beautifully portrayed by King Solomon nearly 3000. years ago, and a man who had as many wives as he, surely could speak from experience. He knew the value of a virtuous woman, for he said: "Her price is far above rubies." Her husband trusts her judgment and economy, and has no need of spoils to satisfy extravagant notions. She is a commercial woman: "She bringeth her food from afar." She is an industrious woman: "She riseth also while yet it is night and giveth meat to her household," as many of us have done for years. She is a horticulturist: "She considereth a field and buyeth it; with her hand she planteth a vineyard." She is an athletic woman: "She girdeth her loins with strength and strentheneth her arms." She has confidence and good judgment: "She perceiveth that her merchandise is good." She is charitable: "She stretcheth out her hands to the poor." She is a good manager and has her work up to date: "She is not afraid of the snow for her household." She knows the pleasure and importance of being well dressed: "She maketh herself coverings of tapestry; her clothing is silk and purple." She is a suffragist; she believes she has an inherent right to make a name for herself, independently of any one else: "Her husband is known in the gates when he sitteth among the elders of the land." But the most beautiful phase of this ideal character is that of Christ-like loveliness—that of a true woman: "She openeth her mouth with wisdom, and in her tongue is the law of kindness."

The king is very gracious to this well-equipped woman, and grants to her that which has been denied to many women in the centuries that are past;

he says: "Give her of the fruit of her hands; and let her own work praise her in the gates." The ideal wife will practice economy in household affairs, and realizing the value of time and strength will not waste either, but will see that both are used to their very best advantage. She will provide good. wholesome food for her family, and will manage so discreetly that nothing good will be wasted, and items of good food left from one meal will be made into appetizing dishes for another one. She will follow the example of the great teacher of industry and thrift, Jesus of Nazareth; He who could feed a multitude of people numbering 5000 men, besides women and children, with five loaves of bread and two small fishes. He who possessed this wondrous power, who had at His command the vast resources of nature, taught the value of economy and the sin of needless waste when He gave the order: "Gather up the fragments that remain, that nothing be lost." I call to mind an incident in my own life that is indelibly impressed upon the pages of memory. When I was quite a young child I threw a large piece of bread out in the yard. It was not even thrown where the chickens or any animal could get it. My father came in soon after, and, seeing it, said: "My daughter, never throw anything away that is good to eat: you know I clean the wheat in the barn, and sweep up every grain that I can get; and think how many grains of wheat it would take to make a piece of bread as large as that."

My good father went to the "home land" years ago, but the lesson remains with me. The ideal wife will gather up fragments of fruit that are unfit for market; some overripe; some specked, but too good to be wasted; some that is brought home when the market is dull. These she will put up in the various ways; and though it may not be the very best and she may have enough for her own use, yet she knows there are many people who have little or no fruit who would be glad to get it; and she will also give some of the best, especially, to the sick. This fruit can be sent out or collected by various agencies—the missionary societies, the Salvation Army and others who will place it where it will do the most good; and in this way she will be doing practical missionary work in her kitchen. To be sure, there are times when she is tired of looking at fruit, especially the imperfect fruit, and she longs for the time to read a favorite book or the latest magazine, or chat with a neighbor, or do some needlework that is so fascinating and so restful; perhaps she cannot even keep the children's clothes mended and the house in order as she loves to have it; but she remembers that "even Christ pleased not Himself," and she knows that she is doing Christ service when she gives of her labor to those who are in need. Paul said to the church at Ephesus, in an exhortation in behalf of honest industry, "Let him labor . . . that he may have to give to him that hath need."

Frances E. Willard, the only woman whose statue adorns statuary hall, at the national capitol, gained world-wide reputation because she pleased not herself, but gave her life to raise the standard of humanity and to remove temptation from the weak. She loved her home, but she spent little of her time there. She loved literature and scientific studies, but she denied herself these pleasures, and gave her life to make the world a safer place for men and women and helpless children. Carrie Nation, that much honored, much persecuted woman, who has done so much to stir up the good people of our

state and arouse them from the condition of "reluctant acquiescence" into which they have fallen, and who was so many times imprisoned in prohibition Kansas for disturbing the peace of joint-keepers, once said in my presence, during a conversation on household adornment: "I like to look at pretty pictures; I like to hear the birds sing; but I have not time to sit down and enjoy those things while my brother is in the gutter and needs my help. When I get to heaven I'll have all eternity to look at pretty pictures."

The ideal wife will teach her child the beauty of the spiritual life; its relation to the creator; that God is a father who loves, and that all His prohibitions are for the happiness of humanity; and that the greatest earthly joy that can come to a human being is that of companionship with Him and obedience to His laws.

She will look well to the moral development of her household. She will teach her children that the creator has a right to expect a pure life from every individual, and when her child questions her in regard to the mysteries of life, she will answer in pure, simple language all that it needs to know, that the innocent life may be kept pure. Life is the gift of God to humanity, and should be considered a sacred trust, to be returned with interest; and no false conception of modesty will allow her to lose her child's confidence by turning it away or telling it an untruth. A garden, however well prepared, will not grow beautiful fruit or flowers unless seeds are planted and the tender shoots cultivated, but weeds will grown without care. So it is in the child life; and how many mothers, alas, too late, learn that while they were waiting for the child to grow old enough to be told the truth in its beauty and purity, the enemy had been there and sowed tares of impurity! So it is vastly important that she should preempt the fertile soil of the young mind and plant it with seed that will produce pure and ennobling thoughts; for the mind must be occupied, and there should be left no room for the impure thoughts which, if unchecked, will lead to impure deeds.

She will teach the child to love nature and to study its many wondersthe formation of the soil; its life-giving properties; the partnership of plant and soil; of the insects that help or hinder the horticulturist, even the little earthworms that help to keep the soil from becoming hard and barren; of flowers, and how to develop love for them, by giving them the best of care; how the leaves and roots derive their sustenance; and, above all, she will teach the child to treat all animal life with kindness. She will teach respect The tendency of this age has been so much to crowd the younger generation to the front that the respect which should be shown to those of mature life is sometimes withheld, to the detriment of the young people more than to those who are older. A good, ripe age, with its wealth of experience, is of untold value to the coming man and woman, and there would be less regret to some people as the years advance if age received more of its due. She will teach that youth is the time to prepare for age by laying up stores of wisdom for future use and means for sustaining life when the working days are gone.

One of the best lessons that comes to us from oriental countries—and we can learn something from every nation—is the veneration shown to the past; and while they are too much bound by customs and traditions, the countries

that have developed a later civilization have too little, and in the rush of life forget to appreciate the experience of those who made possible the triumphs of the present.

The ideal wife will remember her social obligations. If she has learned something new in literature or household art, or anything that will make others happier or more skilful, she will not withhold her knowledge, but will gladly meet with them in social relation and impart to them her gifts, and thus brighten life for herself and others.

She is a literary woman, and will devote some time to the study of past and present conditions. She will strive to know what is going on outside of the home and what conditions her children will meet as they take their places in the affairs of state and nation, and will do all in her power to make the world a safer place for her own and the sons and daughters of other mothers.

She will teach them that present industrial conditions demand a steady hand and clear brain, and that the person whose system is weakened by alcohelic or narcotic poison cannot reach the highest plane in the spiritual, moral, social, intellectual, industrial or physical world. These are some of the characteristics of the ideal wife, not fully portrayed, because the standard is imaginary. Reaching to our ideals is not unsatisfactory, not discouraging, not chasing a phantom that is ever eluding our grasp. By striving we rise to greater heights, but not the greatest; we attain, but do not reach the attainment; yet there is great satisfaction in that which is gained, and every day brings to the unwearied toiler something that will develop character, which, like virtue, is its own reward. A character is no stronger than its weakest point; so it must have a sure foundation; and much that goes to make the solidarity of the structure, like that of large buildings, is hidden from human sight. Dickens says: "It is the little things that make up the sum of life." So it is the little strokes of the artist's brush that complete the great pictures, and it is the little things that make or unmake character. Thus, to reach our ideals we go on and on, never failing, never faltering, sometimes in darkness, sometimes seeing the way clearly, sometimes on unknown seas, sometimes in pleasant harbors, sometimes misunderstood, sometimes appreciated, learning much, forgetting and unlearning more. Still we go on discovering new worlds, bearing in mind the heroic efforts of the great mariner whose struggle toward the ideal amid such adverse circumstances gave us not only this great continent but also an incentive to accomplish our own purpose in life.

The result of determined effort is graphically portrayed by the "Poet of the Sierras" in his "World's Fair Poem."

"Behind him lay the great Azores,
Behind the Gate of Hercules;
Before him not a ghost of shores,
Before, only the shoreless seas.
The good mate said: 'Now we must pray,
For lo! the very stars are gone;
Brave admiral, speak—what shall I say?'
'Why, say, Sail on! sail on! sail on!'

"'My men grew mutinous day by day, My men grew ghastly, wan and weak'; The stout mate thought of home; a spray Of salt washed o'er his swarthy cheek. "What shall I say, brave admiral, say—
If we sight not but seas at dawn?"
"Why you shall say at break of day,
Sail on! sail on! sail on! and on!"

"They sailed and sailed as winds might blow,
Until at last the blanched mate said:
"Why, now, not even God would know
Should I and all my men fall dead;
These very winds forget their way,
For God from these dread seas is gone.
Now speak, brave admiral, speak, and say."
He said: 'Sail on! sail on! and on!'

"Then pale and worn he kept his deck
And peered through darkness. Ah, the night
Of all dark nights! And then a speck—
A light! a light! a light! a light!
It grew; a starlit flag unfurled!
It grew to be Time's burst of dawn!
He gained a world! He gave that world
Its greatest watchword, On and on!"

THE IDEAL HORTICULTURIST.

By EDWIN SNYDER.

He does n't live—he never lived. Adam was probably a very good man in his way. They say he had a nice garden; but he was a sort of a "hand-medown, ready-made horticulturist." If he had known enough to have killed the serpent and disciplined Eve a little, he might not have lost the title to his real estate. As a horticulturist, he should have had an easy time. No codling-moth or canker-worm or tent-caterpillar or San Jose scale or other pestiferous insects to pester and annoy; no scab or blight or fungous disease to spray for; no commission men to quarrel with because of unsatisfactory sales; and no railroads or express companies to absorb the profits of the business with exorbitant charges. It must have been that in some way he was a poor tenant, or he never would have been served with that writ of ejectment.

I never took much stock in the forbidden-fruit business; and yet I must admit that, ever since Adam's time, what is forbidden by law, human or divine, seems to have a great fascination for the sons and daughters of men.

The boy frequents the "swimmin' hole" in spite of maternal injunction not te; and some grown men find a peculiar fascination, if little profit, in violating the Kansas prohibitory law. I have often wished Adam had behaved himself, so that we might not have inherited his disagreeable traits; and had he been an ideal horticulturist, he surely would.

The ideal horticulturist is an absolutely honest man. He is a worker—a persistent, steady worker. He deals with nature, and nature is profoundly imbued with integrity; is implacably hostile to unreality and sham; so inflexible in giving so much for so much, and yielding no more to whatever of cajoling or wheedling, that the horticulturist, as a worker, is absolutely constrained to honesty. He may be tempted to cheat in trade; to put the best berries on top; to face the package with superior fruit, and fill up with an inferior article. But he knows better than to attempt to defraud nature; for

he knows that every crate of berries or box or barrel of apples costs so much of mental and physical effort, and can be secured by no less.

I am glad the horticulturist is compelled to work. I have unbounded faith in the beneficence of labor as a foundation for human education and discipline. Upon this subject, the great essayist, Channing, said: "Man owes his growth, his energy, chiefly to the striving of the will; that conflict with difficulty which we call effort." Easy, pleasant work does not make robust minds; does not give men a consciousness of their powers; does not train them to endurance, to perseverance, to steady force of will—that force without which all other acquisitions avail nothing. Manual labor is a school in which we are placed to get energy of purpose and character; a vastly more important endowment than all the learning of all other schools. They are placed, indeed, under hard masters, physical suffering and want, the power of fearful elements, and the vicissitudes of all human things. But these stern teachers do a work that no compassionate, indulgent friend can do for us, and true wisdom will bless providence for their sharp ministry.

"The material world does much for the mind by its order and beauty; but it does much more for the mind by the pain which it inflicts; by its obstinate resistance, which nothing but patient toil can overcome; by its vast forces, which nothing but unremitting skill and effort can turn to our use; by its perils, which demand continual vigilance, and by its tendency to decay. I believe that difficulties are more important to the human mind than what we call helps. Work we all must if we mean to bring out and perfect our nature. No business which does not present obstacles, tasking to the full the intellect and the will, is worthy of a man."

Measured by the obstacles and difficulties he must overcome to be successful in his calling, the horticulturist must be possessed of about all the graces and virtues. The ideal horticulturist is not afraid of work. He shrinks at no problem the science of horticulture may present. No theory of the enthusiast, however plausible, is accepted by him without first passing the ordeal of actual experience.

The glib agent appears with the device of a lamp and a pan of coal-oil to catch the codling-moth by night. The horticulturist is from Missouri, and must be shown. When the unfortunate nursery agent presents to him the plausible but fallacious theory of the superiority of the whole-root grafts over the piece-root, and asks him to invest, he is likely to invite the gentleman to "go hence" or to "get thee behind me," or make some similar remark that may be easily comprehended. They say a sucker is born every minute and one dies as often. The ideal horticulturist will never be accused of being in this class. One of his characteristics is, "He is not afraid of manual labor." He is not specially anxious to live by the sweat of some other man's brow. He believes in the dignity of labor; in its beneficent, elevating influence upon the laborer. He insists upon honest, efficient work by his employees, and cheerfully sets them the example when necessary. The theory of working eight hours, loafing eight hours and sleeping eight hours finds no sympathy with him. Better overburdened than not burdened at all; better wear out than rust out. Better, a thousand times better, not only for the man himself, but for society as well, that a man should work himself to death rather than shirk himself to death. The ranks of ablebodied pauperism and crime are constantly being recruited from the idle and unemployed; not voluntarily idle, perhaps, but because they have not been taught in youth any useful work or trained to systematic habits of industry.

The ideal horticulturist is a public benefactor in that he would change all this by keeping the youth of the land of both sexes skilled in his line of work, and at the same time pay them a reasonable compensation for their services. The wisest and most beneficent philanthropy is that which teaches the otherwise idle youth to be self-helpful and inculcates habits of industry and thrift. The ideal horticulturist must possess the homely virtues pluck or grit, without which all efforts and the best-laid plans are liable at any time to fall flat. "Pluck wins; it always wins." The "days are dark and nights go slow, 'twixt days that come and go." Still pluck wins.

"Its average is sure.

He gains the most who can the most endure; Who faces issues, who never shirks, Who waits and watches and always works,"

Well, I have waited for an apple crop for three weary years, and have watched an abundant promise and profusion of blooms, under the blighting influence of the east winds, cold rains, or freezing temperature, fade into almost utter failure; and yet I am not discouraged. "Hope springs eternal in the human breast." I will keep my orchards in as good condition as I can and some time my reward will come. The most successful fruit-growers are those who have conquered the greatest discouragements. J. H. Hale, in the beginning of his memorable career as a peach grower, was beset by embarrassing debt, and met the discouragement of three successive failures of his first Connecticut peach orchard, due to inclement winters; but pluck and persistence won, and he enjoys the distinction of being the most successful and extensive peach grower in the world. The ideal horticulturist is a lover of nature. He is above the mercenary spirit of the age, which measures everything by the dollar-mark. He is in no rush to get rich. He makes the world better by having lived in it. His life and work give inspiration to others. His premises and surroundings are an object-lesson to be emulated. He takes a public-spirited interest in public affairs, encourages the adornment of school and other public grounds by planting trees and flowers. He is respected in his community and regarded as a faithful exponent of horticultural interests; is always prepared to preach the gospel of horticultural lore, and says, with the poet:

"What does he plant who plants a tree?

He plants cool shade and tender rain;
The seed and bud of days to be,

And years that fade and flush again.

He plants the glory of the plain.

He plants the forest heritage,
The harvest of a future age,
The joy of inborn eyes to see.

These things he plants who plants the tree."

THE IDEAL HOME FOR THE HORTICULTURIST. By Edwin Tailor.

The audience is entitled to know that the writer did not choose this subject. It was assigned to him. A subject cannot be fairly treated by one not in sympathy with it, or adequately treated by one unequal to it.

Feeling himself to be much at sea on the topic of idealism, applied to the homes of horticulturists and otherwise, the writer fell back upon his little dictionary, his frequent solace in times of similar trouble. The definition there given was more than a column of fine print, and, while the word has other shades of meaning, this is the summing up:

Ideal—"A conception that exceeds reality." Ideal—"Imaginary, fanciful, shadowy, unreal, chimerical." There is no place on earth where those words are freighted with such misfortune as when they are applicable to a home. If sincerity and truth sit not by the fireside, whoever else abides there will certainly abide in unrest and gloom. Half of the misery in the world comes from the discrepancy between what actually is and what we have allowed ourselves to dream about and fall into the habit of expecting.

"A sorrow's crown of sorrow is remembering happier things," says Tennyson; but next to it in poignancy is the discovery of a great gulf fixed between what we have anticipated and what we have obtained. The young gardener who lies on the grass under the old apple tree watching the summer clouds roll by, with their changing forms typifying whatever he is looking for—especially if it is something in the shape of a cottage—that man is preparing himself for possible disaster. The ideal home he is constructing out of the floating, misty, unstable fragments of vapor will make any real home seem paltry and undesirable. There are no houses built of the "stuff that dreams are made of" that will not "fall" worse than those "builded upon the sand"; neither are there any women to put in them so handsome, so engaging, so amiable, so capable, so sweet, as those a young fellow may see, if he has an eye for it, flitting in and out among the embers of an open fire.

The author of that profound discussion of life, "The Autobiography of an Old Maid," in the December Everybody's Magazins, gives as one of the reasons for certain unmarried women having missed the plain destiny of nature, this: "Because we were seers of visions and climbers after the impossible." I suspect—I may be wrong—but I suspect that men are also capable of telescopic magnification to partial eyes, wherein they appear as if possessing qualities which the cold, discriminating world cannot see. But let any young woman with a long-distance glass put it down, and before she irretreviably commits herself, take a close view, with a microscope, if possible, of his shortcomings and imperfections, so that she may save herself the shock of finding, after a year or two of married life, that she was mistaken in her antenuptial matrimonial calculations by half a diameter or more.

When I was a middle-sized boy, Jeff. Gibbons and Sophronia Hawkins were the leading young people in our school. Sophronia was a very striking girl, on the fluttering order, with an adjectival opulence in which her favorite properties were the words "ideal" and "exquisite." For a long time their complete embodiment, in her estimation, had its goings out and com-

ings in with Jeff. Gibbons; but they "broke off," as we used to say, toward the end of the year. Jeff.'s father was on the board of trade and the son had enriched his vocabulary with the lingo of the exchange. His explanation about Sophronia was, that "she had so much of her capital tied up in the ideal that he was afraid she could n't margin the real."

Does n't the Vicar of Wakefield explain his daughter's unfortunate marriage by saying that during her courtship her mother "used every art to magnify her merit"?

There be those to whom it appears that a grand conspiracy, or mania, perhaps, has society in its possession, to magnify and boom and falsify and exaggerate and gild and idealize, on the one hand; to cover up and ignore and keep quiet, on the other.

Mr. Charles E. Hughes, the New York insurance inquisitor, the other day said: "The most important thing just at present is for boys and girls, men and women, to learn to be honest, to learn to tell the truth." Do we tell the truth; dare we tell the truth, and the whole truth? Let this little incident make answer: When it was suggested at the last meeting of the Missouri Valley Horticultural Society, held a few days ago, that its members should wear an appropriate badge when they appeared at the state meetings of Kansas and Missouri this week, and that an expressive and truthful emblem would be a big red apple preceded by the minus sign, rampant on a field of blue, there was no open objection made, but the device was not adopted just the same. There they were, the owners and managers of more than a thousand acres of apple orchards that have been more conspicuous recently for looks than fruit; but planted, all of them, with great expectations, and some of them with ostentatious announcement that the trees were set "leaning toward London," but now, orchard-stricken as these gentlemen were, without a whole car of first-rate apples among them, or a single piece of British apple money in their pockets, they still refused to "own the corn" or make an open confession before a scornful world.

And when the governor of the state, in a recent public address, essayed to give his audience a glimpse of the naked truth concerning a public question, he did not dare to make his statement without first preparing for a get-away, by denying that he was a pessimist, although he did intend to state the facts.

When you come to look into it a little, this notion of the ideal runs into pretty much everything that we have to do with. Perhaps an illustration or two quite foreign to the title of this paper may serve to show in part the trend and bias of idealism, indicating the direction toward which its prevailing breezes blow, whether they fan the vines of the humble home of the horticulturist or press the ripples up the sandy, shelving shores of Altruria. A member of this Society had the great good fortune to be shown through a certain art gallery by a fair chaperone who was herself an artist and a teacher of art. They stopped before a landscape scene, with men and trees and distance depicted—the "most famous work of a famous French artist," the guide and counselor explained. "But," said the member, begging pardon if, in his ignorance, too free he made, "neither men nor trees ever looked like these." "Oh, certainly," said she, "they are idealized." "Does that mean that they are distorted?" asked the member. "It means," was the reply, "that they are treated subjectively." The member's attention was

next caught by the representation of a dug-out door, swung open, and hung with cowboy belongings-a carbine, a revolver, a saddle, a quirt, a pair of spurs. Here nothing was idealized or treated subjectively. It was impossible to tell whether it was an actual door hung with actual things or a pictured door hung with pictured things, or whether it was part picture and part things. The member at first inclined to the latter explanation, deciding that the carbine (it was a Remington, one of those with an octagon blued barrel) was a sure-enough gun, and he would not believe that the knot-hole shown did not go through the door till he stepped up to try it with his finger. "That," said the member, when they turned to go, "must be a work of art." "If you admire bald realism," she said, "it is as good as any." There is the rub—bald realism. That is the black beast of more than artists. It is shunned, side-tracked, estracized, zipped by pretty much all classes. Pretense and artificiality and ideality—all the opposites of reality—hold the boards. Half of the books our children read are fiction, and half the people they meet are idealized as to appearance; that is, are putting on more style than they can afford. The most-quoted line of Emerson is, "Hitch your wagon to a star"; a figure of speech for the impossible.

The schoolboy is urged to aim high—that is, out of range; and the schoolgirls who have decided to be prima donnas or marry dukes probably outnumber the cooking class two to one. The whole blooming business of unreality and fiction and exaggeration and pretense, and bogus butter and manufactured news and padded accounts, and dissimulation and blow and bunco and uncandor, and double bookkeeping and secret rates and high finance, more than make the judicious grieve—it makes them sick.

But, putting aside the "ideal" home of the horticulturist, let us consider for a moment his actual home as it sometimes is, and all the time ought to be. The horticulturist's "truly" home does not depend for a single important quality upon the shape or size of the building. A box house of two rooms has held some remarkably fine families; in fact, better people have never lived than have flourished and helped each other and loved each other in a house of one room, made of logs, at that. No young man who stands shivering upon the brink of matrimony should ever wait for more rooms than are available, or a better start than to start now. And if the young woman in question is made of the right metal and has the right "hanker" for him, there will not be any delay on her part because of humble beginnings; and in establishing their new home, no end of satisfaction will come to them from accepting the situation as it is without affectation or concealment, and putting behind them every suggestion of Satan to appear richer than they are.

It is desirable that the box house of the young horticulturists should belong to them, but it is not important except from the standpoint of permanence and continuity of the business. People have been just as happy in houses they rented as in those they paid taxes on. Rent is less formidable to the horticulturist than to the broadcast farmer; for whereas the horticulturist will have to pay about the same rent as the farmer—that is, all the landlord thinks the farmer can stand—his returns per acre ought to be several times as much as the farmer's, with the rent charge a small item in his expense account. Let this thought also mitigate the young man's thralldom as a tenant, viz., that there is a good time coming when rent for land (ex-

cept some nominal rental to the state, perhaps) will be a thing unknown; for outside of what is held as homesteads, land will certainly some time be taxed by the state to a point where holding it would break the holder up. It is incredible that an enlightened people who mean to do justly and who make their own laws should indefinitely allow the landlords, in town or country, to collect revenue from values they did not create. It may be a difficult thing for young people emerging from an atmosphere like ours to drop to a level of candor and frankness with each other and the world, but it is an imperative beginning to a good ending.

The first thing is to put the household on a sound basis economically, even if it takes patched clothing and hulled corn to accomplish it. The next is to "justify" all of the "forms" of the family on an "imposing-stone" of right doing. In the meeting-house they call it righteousness—a formidable sounding word, but it means the same. The next is to cut out in thought and speech the possessive pronoun, first person singular. The well-trained horticulturist says "my wife," of course, but it's "our" farm and "our" stock and crops, and "our" money—see? Do not keep your own counsels about the business, brother. Talk your plans over with your helpmeet.

It cannot be said that the inventor of that word "helpmeet" filled a long-felt want, since it was applied to Eve as soon as ever she came over; but it conveys an idea, a thought, an estimate of a wife's value as a business partner, that grows with the years on a man who happened to get one out of that great majority of women to whom the expression "helpmeet" can be truthfully applied. It is not alone in the garden or on a fruit farm where the judgment and discretion of the wife has been a potent factor in the family success; but in every line of life the men who are heartened and helped forward by their wives, and who, when occasion serves, are glad and proud to acknowledge their obligations, include the most of us and most of the best of us.

The home of the horticulturist, and, for that matter, the home of any other man, if it is beautiful at all, like the king's daughter, is made beautiful from within. Jimcrackery and what-nots and jewels and cut glass and much furniture only feature and accentuate any unsuitability in mind and purpose that may be there.

The cheerfulest and helpfulest beacon ever seen by the mariner on life's stormy voyage is the glow of content and endeavor upon the faces around the hearthstone where the hearts are in accord.

Adjourned till nine o'clock to-morrow morning.

SECOND DAY-Morning Session.

WEDNESDAY, December 27, 1905.

Called to order by President Holsinger. Prayer by Rev. John D. Knox.

REVIEW OF THE SITUATION.

By FRANK HOLSINGER, President,

There is little to report, on the part of the chair, that is encouraging or from which he can take comfort, owing to low temperature of the preceding winter, by which much damage resulted to our fruits, killing the stone-fruits in the bud, and leaving many trees of all kinds in a condition that caused them to succumb during the summer. This applies to the forest as well. Even the elm, which we consider one of our hardiest shade-trees, is no exception to the rule. In consequence of the severity of the weather mentioned, little fruit remains unharmed in the eastern part of our state. There were, however, some exceptions to the rule on favored elevations and locations. We had one orchard on a north slope which gave us some bloom, both of peach and plum. A severe freeze after the blooming season caused the fruit to fall. To the apples the same happened.

Fortunately, Kansas is a large proposition, with a great diversity of soil and climatic conditions. So that while one section may be barren for a time, there are other sections which bloom as the rose. Thus, while the supposed great fruit section along the valley of the Kaw river has been barren of fruit, there are sections of the state where fruit has been a great success. Thus, in Linn county, Mr. Coombs rejoiced in a crop of 250,000 bushels of apples. Possibly no other orchardist in that county can boast of such a crop. There are other sections in what was a few years ago considered an inhospitable region for fruit-growing that have developed into a great fruit region, the last few years producing the very finest of fruit, both in quality and quantity.

Let us then take courage—our trees have had a rest. The insects, too, will have been reduced to a minimum, if not entirely eliminated.

THE MEETING AT WICHITA.

Possibly no summer meeting in years has been so successful in all that goes to make up a good meeting as the one at Wichita. It was a success in every particular. Every number on the program was faithfully carried out. The attendance was good, with quite an interest on the part of local talent. The company, with our secretary, Colonel Robison, and other members, visited a number of the best fruit farms in the vicinity, notably those of the Hoover brothers. I was indeed surprised to see the fine orchards on what we denominated, some forty years ago, when I first visited this locality, "sand-dunes." We then thought these lands forever worthless for farming purposes of any kind; for fruit-growing, the suggestion would have been visionary in the extreme. However, to-day there are no better nor surer fruit lands than are found along the banks of the Arkan-

Horticultural development in Kansas has kept pace with the other lines

of industry. Already 18,000,000 fruit-trees have been planted, with more than 6568 acres of vineyards. When these trees shall have come into bearing, then will the reputation of Kansas be established, beyond the possibility of contradiction, as the great fruit state of the Udion.

Less than fifty years ago I received my first consignment of plants and trees, essaying to start a nursery in Douglas county, some twenty miles east of Topeka. My good friends assured me that "it was an experiment that would doubtless end in disaster, as our prairies would not produce fruit,

and that we must look to Missouri for our fruit supplies."

While the civil war prevented the full fruition of our hopes, yet we did see many of these trees come into bearing. Kansas is to be congratulated on her development as a great fruit state. Much of this is due to her magnificent Horticultural Society. In membership we are the equal of any of our sister states. Our horticultural reports compare favorably; our orchards in immensity are unsurpassed; in intellectual advancement of our membership none surpass us. The blessings of horticulture give an assurance of comfort and happiness to our homes. Let us, then, these Christmas times, not forget to be thankful to our kind Heavenly Father for all His blessings. We are indeed a favored people.

FINANCIAL REPORT.

Received from three annual memberships, at Wichita	\$ 3 (00
Delivered to treasurer	3	00

REPORT OF TREASURER.

By WALTER WELLHOUSE.

Received from G. L. Holsinger, late treasurer		
Cash on hand	\$554	50

SECRETARY'S REPORT.

By WILLIAM H. BARNES.

To the Officers and Members of the State Horticultural Society: I offer the following report. The work of the Society is now quite different from its former course, yet it still includes all the older features. The great essential act allowing us to take statistics was so uncertain of passage that your secretary did not dare to attach any request for an appropriation, and we find that it brings to us a strenuous life. The statistics comprise fiftyseven questions, each easy to answer; yet the very incompleteness of the work of the assessors, the illiteracy of some and the indifference of others make it very hard for the office to gather, from the statistics, the desired information; and as the assessors are dismissed long before the returns come to us, there is no way to obtain any corrections or additions.

I now present the following for 1904:

VALUE OF HORTICULTURAL PLANTINGS.

Kind.	Number.	Value, each.	Total value.
Bearing:			
Apple trees	6,896,082	\$10 00	\$68,96 0,820
Pear "	256,751	10 00	2,567, 510
Peach "	4,69 5,496	5 00	23,477, 480
Plum "	902,893	3 00	2,70 6,679
Cherry "	76 0,095	6 00	4,560, 570
Quince "	11,685	5 00	5 8,425
Apricot "	169 ,561	3 00	508 ,683
Vineyards (acres)	6 ,568	100 00	65 6,800
Berries, "	12,689	100 00	1,268, 900
Not bearing:			i
Apple trees	2,072,081	2 00	4,144,162
Pear "	168,378	2 60	336,756
Peach "	1,145,924	50	572,962
Plum "	219 ,302	50	109,651
Cherry "	830,069	1 00	330,069
Quince "	7,173	1 00	7,173
Apricot "	67,144	50	33,572
Street shade-trees	559 ,288	5 00	2,796,440
Planted forests (acres)	170,043	25 00	4,251,075
Total			\$117,347,457
Fruit grown in 1904 (estimated)	l	l	422,529
Vegetables, 1904 (to assessor)			2,145,954
Total value of horticulture 1904		 	\$119,916,940

Quietly, yet ever onward, the horticulturist keeps up his work. Many think our state not adapted to fruit-growing, yet these great figures show differently. You have heard the reports given here by trustees and others, and we are warranted in looking forward to a good crop in the year 1906. While we have over 17,000,000 fruit-trees, 6568 acres of grapes, and 12,689 acres of berries, yet our state probably imports and uses more of the same kinds of fruit than we grow, and many are without fruit, and, for this reason, some say this is not a fruit state.

The great fault is we have not yet planted enough. Look at our largest orchards; when they bear a crop it almost invariably goes out of the state, not to hunt a market, but already marketed to a buyer. Our farmers sell their corn and hogs to leave the state, and buy bacon and stock foods. Our oil goes abroad and our people buy imported oil. Our potatoes go over the world, and we buy Colorados to eat; our apples go to Eastern points, and we go without.

In 1904, which was not considered a fruit year, we grew two bushels of apples for each man, woman and child in our state. You man with a wife and three children, did you get your ten bushels? Our berries go to Colorado, Nebraska, Iowa, and elsewhere. In 1904 we grew 12,350,000 boxes of berries, yet many families had none. Why not grow enough for shipment and for home also? Kansas is known abroad as a fruit state. We seem to be rabbits afraid of a wolf. If the man who grows 1 acre would grow 10—if the man with 10 acres had 100—the inducements would be such as to fill the land with buyers from abroad, anxious to get some of our good things.

The Society labors under much embarrassment owing to the actions of some of the state officers, clothed with a little brief authority, and the silly actions of some newspaper reporters. The state auditor, in his printed report, advised that a less amount of money be appropriated for this department; and the legislature clipped our appropriations \$1800. The reporter aired his ignorance as wisdom, and an appropriation, already passed one committee, and twice printed, for cleaning and furnishing these rooms, was cut out. These people ignore every opportunity of learning anything about this department, yet feel the great weight of responsibility resting upon them, and, abhorring (?) the possible waste of state money, they meddle with matters beyond their ability. Tell me who knows mere about horticulture and its needs than the horticulturists of the state?

For eight years the reports of the Society were issued annually and were standard works of reference. Now, when the latest information is desired for immediate use, the reports are held back and published biennially. Do you know that the transactions of this Society and all its stenographic notes taken one year ago, and those taken at Wichita in June, are all lying still unpublished because of this short-sighted policy, championed by the late secretary of state and blindly voted for by the legislature?

If our efficient entomologist tells here how to combat in the most successful way the insect pests, you have to wait two years—perhaps longer—to read of it, and then it may be either too late or many times more costly. Does it save money? Not a cent. Two annuals would cost a little more than one biennial, but their usefulness would cover many times such expense.

The summer meeting at Wichita was a success, and its actions are printed in this volume.

The great occasion of the year was the meeting at Kansas City of the American Pomological Society. You will remember the beginning of this move was the invitation given here last winter to its president, J. H. Hale, to which he responded most felicitously. It is regrettable that Kansas did not turn out better and that so little Kansas fruit was shown. The meeting was a notable one, and Hon. L. A. Goodman, secretary of the Missouri Horticultural Society, was elected its president. The meeting of the Federation of Horticultural Societies was held at the same place and time, and your secretary was elected president of the same.

It is greatly to be regretted that no summer meeting can be held in 1906, owing to the aforementioned curtailment of appropriations, unless some place wants it badly enough to "put up" for its small expense.

We are fortunate in securing so much able talent from abroad, and hope you will all appreciate it and be gainers thereby. With the horticulturist's proverbial faith, I bespeak for each of you a profitable and prosperous year, and assure you that your secretary will try, as usual, to do his whole duty with vigor and perseverance, trusting in the Giver of all good for the material and opportunity of making a far more satisfactory report in 1906.

The value of the horticultural products eaten at the table of the grower cannot be computed. Over 500 miles of dining-tables are spread three times every day with the best things earth will produce for the people of Kansas.

The value of the 18,000,000 fruit-trees and the 19,257 acres of berries and grapes is \$119,916,940.

Of forest-trees of natural growth, we have 386,007 acres; of hand-planted

groves, etc., 170,043 acres; making a total of 556,050 acres. In addition to these, there are over 600,000 street trees for shade, the value of which cannot be told.

When the cattle, hogs or sheep are sold, the corrals and pens are empty; when the grain is sold, the bins are empty. But, after selling and eating several million dollars worth of horticultural products, we still have the trees, bushes and plants not only left, but covered with fruit-buds awaiting the warm temperature of the new spring to bring forth other millions.

The statistics given are not guesswork, but facts. They are undoubtedly much too small, as in thirty or forty townships the assessors did not take them, and others "fell down" when only partly done. Kansas has reason to congratulate herself on her horticulture. I know of no other state that can with strictly accurate figures make as good a showing on same lines.

A FEW REMARKS OF A PERSONAL NATURE.

My first meeting with the Society, as a body, was in December, 1895, at Lawrence, after I had made out the program and prepared the work for the twenty-eighth annual meeting. The meetings have been continually increasing successes, and I hope my administration has been of lasting benefit to the state. My present term expires June 30, 1907, eighteen months hence. If I live, I will then have given twelve years of the prime of my life, with thirty years, previous experience, to this cause; and I hope I am doing no wrong, nor shirking my duty, when I say that I have made up my mind to have a little "fun" yet; to enjoy contact with "Mother Earth" again; to get the good things of life not from the grocer man; to rest under my own vine and fruit-tree. Therefore, I beg that you will not consider my name in connection with the office of secretary of this Society when the election at the fortieth, "the ruby" annual, of this Society comes, next year.

I make this announcement at this time so that you may consider the matter well, as there will probably not be any meeting of this Society until then; and I believe you should have sufficient notice that you may have time in which to consider and weigh the application of any candidate who may offer himself.

One cannot have filled this place for twelve years of the best of his life without making it a part of all his future, and must surely always have the welfare of this Society at heart. So I hope you will not deem it imprudent or offensive for me to offer a bit of advice. First, your secretary should be a man of long practical experience, at, or past, middle age. This is no boy's job. Good habits and a mild, generous, charitable disposition are most valuable assets; yet he should not be either a timid, a lazy or a cranky man. The first runs too readily; the second lies around waiting for something to turn up; and the third is always looking for trouble. May the party of your choice be "wise as a serpent, and harmless as a dove."

DISCUSSION OF SECRETARY'S REPORT.

G. W. MAFFET: I notice Mr. Barnes places a value of ten dollars on each apple tree in the state. That is official now, being in the official records of this Society, and it may be used as a basis for computing damage caused by railroads to orchards from the setting out of fires. I would like our heavy apple men to say whether they are willing to settle on a valuation of that kind. I think this will be taken as an official valuation.

J. L. WILLIAMS: I have served a number of times in settling railroad disputes with people in this state, during the last thirty-seven years, and, for the benefit of Mr. Maffet, I will say that this ten-dollar valuation cannot be taken in each individual instance. That would only apply on general principles. That makes an average of all the apple trees ten dollars, even the apple trees that are half dead. The particular orchard that is damaged must be looked at by the appraisers, and, if there are extra good trees and extra good varieties, there would be of course a difference of a great many dollars made in a great many instances. I do not think the average of ten dollars would have any effect whatever on any railroad settlements.

PRESIDENT HOLSINGER: The chair has served a number of times in passing upon fire claims. The universal custom has been to place upon the tree a valuation of one dollar when planted, and increasing with each year one dollar in value up to fifteen years. In this state, at fifteen years, we consider trees are at their full value, and it has been our uniform custom to settle these matters on that basis.

SOME INSECTS OF THE GARDEN.

By PROF. E. A. POPENOR, Official Entomologist.

In former discussions before this Society, the chief attention has usually been paid to the insects of the orchard and fruit plantation. Noting the composition of the Society in its membership, and the importance of the interests thus represented, this partiality is natural. Yet the vegetable-garden is no less important. Its products are as essential to our well-being, and most of us are competent growers of vegetables as well as of fruits. I have, therefore, thought it well at this time to vary the discussion somewhat, and treat in an introductory way of some of the more important insect enemies of some of the more generally cultivated garden vegetables. The essay is not at all exhaustive of the subject, and is offered only as a suggestion of the importance of some of these pests as compared with those to which attention has been specially given in the past.

GENERAL PESTS.

Among enemies of garden plants are a few so general in their food habits as to determine them as the foes of no one plant in particular. To this group pertains the garden web-worm, which for many years has proven very destructive, locally, to most garden crops. This worm is the caterpillar of a small buff moth native throughout the state, and to be found by the close observer every year. Naturally it feeds on a considerable number of native weeds, more particularly the various pigweeds or amaranths. In seasons of greatest abundance it passes to the gardens as an almost omnivorous pest. The little moth, hibernating probably as a pupa, appears early in the spring and lays eggs on the leaves of the plants constituting the food of the larve. When the young worms hatch they feed on the leaves, which they draw together by silk threads, and remain mostly concealed in these shelters. When several larve occur in the same situation, the web over the leaves may become conspicuous, especially since in it are commonly entangled many small particles of dirt blown upon it by the wind.

The tendency to occupy the growing centers of small plants results dis-

astrously upon the plant in its speedy destruction. Corn, sweet potatoes, beets, potatoes and the like suffer severely in years of the prevalence of the insect, and large fields are semetimes completely cleaned of plant growth. As the worst attack is generally at the period of the beginning of the plant's growth, and as it is soon past, reseeding or replanting is practically the only recourse, unless timely application of poisons is made.

As the natural food of the species is composed of various weeds, the desirability of clean culture, limiting the breeding opportunities, is obviously of value. Fellowing the destructive attack of May and June, little direct damage is noted from the succeeding brood, which then is again restricted to the weed growth or to the lower herbage on the cultivated plants. The work of the web-worm is not noticeable over a foot from the soil. We have found it easy to destroy the worms in the height of their activity by a spray of arsenical poison, but as their first appearance is generally unobserved, they have frequently done much damage before the plants can be treated.

FLEA-BEETLES.

While the species of beetles grouped under this name usually confine their attacks more or less closely to their specific food-plants, so many garden plants are subject to attack from some one species or other, and the beetles are so much alike in habits and mode of treatment, that it is as well to discuss them under their generic head. The beetles are well known to the gardener. Their common name is given them from their flea-like jumps when alarmed, a mode of escape made possible by their greatly thickened and muscular hind thighs.

The species attacking garden plants are mostly minute and of dark color. brown or black, sometimes gray from a thick coat of short hair of that coler. The obvious injury due to these beetles is mostly the work of the adults on the stems and foliage, which they riddle with holes or damage by surface denudations. If this were their only work they would still be capable of much damage, especially on the seedlings just above ground. As the insect hibernates as an adult, often in considerable numbers, and as these hungry beetles crowd upon the newly emerged seedlings for their vernal repast, the injury may sometimes result in the complete loss of the early seeding. Moreover, succeeding broods may operate throughout the growing season, and, in potatoes especially, the injury from these summer broads is sometimes noticeable. Such attacks are to be apprehended in plantations of cabbage, radishes, potatoes, beets, spinach, eggplants, tomatoes, and peppers. Time-honored preventives of some value are found in various repellent powders dusted over the plants; among them are air-slaked lime, ashes, soot, or dry dust, with or without the addition of carbolic acid or similar odorous liquids. Where Bordeaux mixture is applied at the proper time other preventives are not commonly needed.

THE CABBAGE.

This vegetable perhaps suffers more openly from its few conspicuous enemies than any other in our gardens. It is rarely unattacked, and commonly is fairly riddled and rendered worthless where grown in limited quantity without a determined effort against the pests which its growth attracts. The most obviously serious enemy of the cabbage in our state is the well-known imported cabbage-worm, the green larva of the white cabbage-but-

terfly. This larva not only riddles the outer leaves of the plant, but also penetrates the marketable heads, thus rendering worthless far more than it consumes. The butterfly emerges early in spring from the hibernating pupa, being one of the first insects to be seen abroad in the season. For the time its eggs are laid on the various overwintering cruciferous weeds, of which shepherd's-purse and false cress are most abundant. Where these and related weeds occur the species is thus greatly multiplied before cabbages are started, and the short time required for transformation allows for a many-fold increase of the parents in time for the general planting of the vegetables.

A little cheap labor employed in the capture of the butterflies when first seen will result in a great diminution of the parents of the second and most destructive brood; yet it is rare to find a grower with the necessary foresight and inclination to adopt this method. In the fall, again the destruction of the useless plants, with their full-grown worms, before the pupation, will be of material assistance. If such plants are left, they may be treated as trap plants, and frequently sprayed with arsenical poisons for the destruction of the larvæ. But the chief effort is always to be made against the worms at the time of their worst attack. Owing to circumstances which need scarcely to be detailed, it is difficult to get at the worms in the cabbagehead. With late cabbage especially, much good work may be done by the application of arsenical poison in a spray, so applied as to reach both surfaces of the leaf. Until the cabbage is half-grown, or even after, this application need not in the least endanger the consumer. Pyrethrum, while non-poisonous, is satisfactory if frequently applied, but is too expensive for general use.

Associated with the imported cabbage-worm occur several native species, the most important of which is the cabbage-looper. As the habits of these worms are sufficiently alike, the same treatment may be advised for all.

The cabbage-aphis, like the insects of its family attacking other plants, is one of the most troublesome in seasons when it is abundant. Under its attack the plants flag, show little growth, or are killed outright. The very rapid multiplication of this insect is due to the occurrence of the agamic females, which constitute the summer broods. By way of preventive measures, the destruction of the useless remnants in the field, on which the lice may breed after the crop is gathered, the removal of the worst affected leaves on standing plants, and the destruction of the cruciferous weeds that breed the pest before the season for planting, are all to be practiced. The direct destruction of the lice by sprays is possible, but difficult of practical application.

In some seasons the harlequin cabbage-bug is so abundant as to work material damage in small gardens. In nature this insect occurs in moderate numbers each year on certain weeds, of which the so-called Rocky Mountain bee-plant (*Cleome*) is most attacked. In gardens the horseradish is also a favorite food-plant. The former plant should be thoroughly eradicated, where it exists. It has little claim to exemption, as the honey which it produces in abundance is of the poorest quality.

In a discussion of cabbage pests, notice should be taken of the "cabbage snake," or hairworm, which has furnished a text for many a sensational newspaper item, and considerable correspondence, within the last year or

two. This worm is not a true insect, but a threadworm, related closely to certain well-known parasitic species. How it gets into the cabbage, if indeed it does, is a mystery; what it does there is another. That it is a regular dweller in the cabbage is not proven, and that it is poisonous to the consumer, as alleged, is altogether without foundation. Its occasional presence should give no cause for alarm.

THE CUCURBITS.

Of first importance among the insects destructive to these plants should be placed the striped cucumber-beetle (Diabrotica vittata), because it attacks practically all plants every year, both above and below ground. It is a somewhat general feeder as an adult, and may be found feeding especially on the disk of composite flowers, such as the sunflower, the rosin weeds, and destructively in the flower-garden, on the aster and dahlia. Its chief food in the beetle state, however, is found on the parts above ground of the cucumbers and various melons and squashes. It cuts off the surface of the leaves; it gnaws irregular holes in the young fruits; it girdles the stem at the collar, and eats large, irregular patches of the surface tissues of the stems and branches. It also feeds abundantly on the flower in all its parts, in which work it is usually assisted materially by its relative, the twelve-spotted cucumber-beetle. As a beetle, it is most destructive to the seedling plant before it has developed true leaves, when it frequently so gnaws and riddles the seed-leaves that the young plant is destroyed completely. It is the more difficult to ascribe to its work the full value, because, while the beetle is at work on the parts above ground, its larva is also at work in the roots and lower stems as a borer. As many as four generations in a season have been noted. It is one of the first pests to appear and one of the last to leave the cucumber.

There are several preventive measures, all more or less useful but none completely efficient. One of the most satisfactory in the experience of the writer consists in the protection of the young plant from the approach of the beetle by the method urged by the late Professor Goff. The simplest means for this purpose is the placing over the hill, even before the seed leaves appear, of a frame covered with wire screening, to be removed only after the growth of the leaves renders it necessary. While cumbersome and expensive, this plan allows the vine to pass the critical period without attack, and, from the vigor thus assured, to keep ahead of the insect in the main, even if later attacked.

A second method, less successful, is the forwarding of young plants in inverted sods placed in a spent hotbed or cold-frame, transplanting them later when well started. The drawback of both of these methods is, of course, the fact that they are applicable only when the vegetables are grown on a limited scale, as in the family garden.

A third, and probably a more generally available method, is the growing of plants or rows of some less tender varieties as a trap crop, destroying the insects attracted to them by persistent spraying with poisons. For this use the bush squashes may be recommended. The early use of Bordeaux mixture for the fungous diseases of the plant has been found to act very satisfactorily as a repellent.

Of the various repellents, tobacco dust, slaked lime, or plaster, with or without the admixture of carbolic acid, soot, turpentine, and the like, it is my experience that they serve the purpose in a moderate degree only.

In the reduction of these and several other vine pests it is necessary that, after the crop is gathered, all unripe fruits and remaining vines should be destroyed, fed to animals, or plowed under, as a surprisingly large number of insects are carried to maturity by overleeking this requirement.

The cucumber- or melon-louse with us is a close competitor with the striped beetle in destructiveness, and, because of its rapid and unrelenting spread, it is commonly regarded the worse of the twe. From its sheltered position on the under side of the leaf it is often unnoticed until it is so abundant as to destroy the plant. Moreover, this position renders it difficult of treatment by the means that would commonly be suggested, that of a kerosene spray, which to be at all of use must be directed largely to the lower side of the leaf growth. This aphis, like others, has a number of summer generations consisting of wingless females only, every louse a prolific mother. The hibernation is effected through the egg produced by sexual individuals in the fall. This insect works to a greater advantage in that it is not restricted to the cucurbits alone, but may be found on other plants, certain weeds among them. As with most insect pests, clean culture is a notable aid to its reduction.

The squash-bug is another well-known fee to the cucurbits, but its destructive abundance is largely due to the failure to destroy promptly any belated plants or fruits of the melon or squashes in or about the garden. The overwintering adults are largely produced from late maturing young fed on the unripe melons or undersized squashes left in the field after the crop is gathered. On these they cluster by the hundreds, and without this food supply the bugs would commonly starve before becoming mature.

A few other pests are occasionally troublesome. The squash-borer, though frequent, is probably not often important. The squash ladybird, one of the earliest described enemies of curcubits, seems not to be trouble-some to the cultivated plants in our state, though I have found it exceedingly abundant at times on wild plants of this family. When it appears in the garden it is easily controlled by poison spray, and Bordeaux mixture, applied as a fungicide, will itself no doubt be sufficient as a repellant.

THE BEAN.

The insects of the bean, practically considered, are not numerous or specially injurious, as a rule, but in occasional seasons a few species become materially destructive. In the writer's experience, three species not usually noted have discovered habits demanding for them a classification as notably injurious bean insects.

The mest important of these is a leaf-beetle not distantly allied to the potato-beetle. This bean-leaf beetle is not often sufficiently abundant to be destructive, but when it does occur in numbers the plants are completely riddled by its attacks. The injury is done by the adult, which eats irregular holes through the leaves, falling to the ground when disturbed, and lying motionless until the danger is apparently ever, when it returns to its food. It flies readily enough but appears to get about in the garden largely by walking also. Its larva I have not observed. The beetle is about the size of the twelve-spotted eucumber-beetle, but is a little shorter proportionately, and more convex. The ground color above is black with yellow markings, or yellow with black markings, according to the degree of either color displayed in its somewhat variable pattern. Though rarely so abundant as

to destroy the crop, it is so occasionally. It may be found in some numbers every year. Owing to its mode of feeding, it is open to ready poisoning by an arsenical spray.

Of equally uncertain appearance with this beetle are two minute plant-bugs which occasionally occur in numbers sufficient to prove a serious check to the growth of the bush-beans of all varieties. These two species are minute black plant-bugs occurring on the under side of the bean leaf, piercing the tissues with their slender beaks and sucking the sap, causing the leaves to wither, and producing many small spots of dead tissue, showing white on the upper surface. One of these bugs is a jumping insect, acting, when disturbed, like a flea-beetle. Both of the species are related not distantly to the tarnished plant-bug, well known to fruit-growers. Owing to their rare appearance, no trials of insecticides have been made looking to their destruction.

Among common bean insects, the green-corn worm, or boll-worm, is deserving attention, especially by the grower of Lima beans of any kind. This omnivorous caterpillar is most troublesome about the time when the pods are well filled out but still green, at which time it travels from pod to pod and from vine to vine, gnawing through the succulent pods to devour the tender beans within. In seasons of its abundance it thus causes material loss to the market growers of this delicious vegetable. It is doubtful if any specific treatment is available against this worm in the garden. Spraying with arsenic in some form will accomplish its destruction, but few are willing to employ this means in connection with this plant. It is likely that, with its relatives, the cutworms, the green-corn worm may be checked in great degree by the use of poisoned bran balls or similar baits, which may be safely used in gardens where chickens do not range.

THE SWEET POTATO.

While with Kansas growers this vegetable has become a farm crop, the practice of growing it in the farm garden wherever the character of the soil will admit calls for some notice here of its few enemies.

Leaving out of the consideration the web-worm noticed elsewhere in this paper, most common of the enemies of this plant are several species of tortoise-beetles, living in all stages upon the leaves. The beetles of this group are sufficiently gay to attract the attention of the least-interested observer. The color in life is wholly or partly a brilliant, burnished gold, marked or dotted in a few with black. This brilliant color is found only in the active insect, and, during the winter, or after death, is replaced by a dull yellow. The eggs are laid on the leaves and there the curious grubs are found, feeding on the leaf substance. When full grown, these grubs, like the larvæ of the lady-beetles, attach themselves by the tip of the abdomen and transform into the adult stage. The larve have at the end of the body a pair of long processes on which are collected the cast skins and the excrement of the grub. These, thus loaded, are carried bent forward closely over the back, doubtless serving as a protection to the flat larva beneath. While always present. the tortoise-beetles are rarely so abundant as to deserve notice as injurious species.

A beetle of much greater possible importance is the green-blue leafbeetle (*Paria viridicyanea*), a species about a quarter of an inch in length, re commonly observed feeding on the leaves of perennial wild morningglories. Although the beetle feeds on the leaves of the sweet potato also, it does no great damage in this way. Not so, however, with the grub, which lives in the roots. I have bred this beetle from specimens of the sweet potato, where it operated in its larval stage as a true borer, tunneling near the skin, or even completely through roots of edible size. The burrows so made are filled with the blackening castings of the grub, and quickly become the centers of discoloration and decay, utterly spoiling the potato. In the garden, where the worst attack was noted, the greater part of the crop was thus destroyed. When feeding on the leaves, as they are in full view and conspicuous by their size and bright green-blue color, the beetles may be captured in numbers by a sweeping net, or they may be readily destroyed by arsenical spray.

Another species of beetle, the checkered Aramigus, occasionally almost completely defoliates the sweet-potato plants in the market garden. This beetle is about one-fourth of an inch in length, and is of a silvery or rosygray color. It is in the adult stage that this insect is destructive, and so far as I am aware its larval stage is unknown. The beetles work on the upper side of the leaf, eating it full of holes, or in extreme cases destroying it almost completely. I have found this insect in this role only in the vicinity of Wamego and Manhattan, where, in the extensive fields of sweet potatoes, it occurs generally, but not usually in sufficient abundance to attract much attention. While the matter is not established by trial, there is no doubt that the insect may be checked when necessary by the proper application of arsenical poisons in the form of a spray applied to the leaves from above.

A MEMBER: I would like to ask Professor Popenoe about rust in asparagus. Will Bordeaux mixture prevent that?

PROFESSOR POPENOE: I should not be sure of that. The rust on asparagus is the cause of a good deal of worry to extensive growers. So far as my outside reading has informed me, the best method of combating the rust is early destruction by burning all of the rusted tops so far as possible, abundant manuring, and frequent cultivation. Rust is an internal disease, and cannot always be reached by external application. The spores, which grow on the outside, are killed by the Bordeaux mixture, and the spread of the disease is prevented to a great extent, but I do not believe it can be cured entirely in that manner.

Mr. WILLIAMS: Do you known the effect of the Bordeaux mixture upon rust of blackberries?

PROFESSOR POPENOE: It is constitutional with the plant, and you cannot kill a thing like that with some external application. You have to get rid of the plant that is rusted and prevent it from spreading the disease.

F. L. KENOYER: I wish to say a word with reference to kerosene emulsion as a spray. In using this I have found it kills the ladybugs. The kerosene emulsion will destroy the ladybugs along with the aphis, but by using a concoction of tobacco stems and water, I find the aphis is destroyed and its enemies are saved. Would it not be wiser to use something that will not destroy our friends while destroying our enemies?

PRESIDENT HOLSINGER: We have present a gentleman, president of the Missouri state society, Doctor Whitten, whom I think able to answer this question.

DOCTOR WHITTEN: I would like simply to second Professor Popenoe's motion, so to speak, when he said that in the attempt to treat asparagus rust the best thing to do is to manure the plants thoroughly and give good cultivation. It came to my mind particularly, from three years' experience we have been having with asparagus rust on our own ground, that anything that keeps up the vigor of the plants and which confines the moisture in the soil is the thing that will best enable the asparagus to resist that rust, and that the spraying, as Professor Popenoe suggested in his experience, has been, in my experience likewise, of very little effect upon checking rust, which is within the plant.

We tried irrigation experiments without any special notion in our minds that we would accomplish any particular result. Having a field that was very badly rusted, and in which the plants were very slim and puny and yellow, we began irrigation, and supplied water during the heated part of the summer, with the hope of reinvigorating these plants. About one-third of the patch was irrigated by means of underground tiling. At the time the rest of the patch began to show the effect of the rust, these plants which we irrigated kept on with a vigorous growth, were reinvigorated in their growth, very little rust got on them, and, after three years of irrigating, these plants are now as large and vigorous and fine as asparagus plants are in anybody's garden. And in spite of the fact that we have given a great deal of manuring and cultivation to the unirrigated portion of the patch, that portion still has a good deal of rust. Irrigation may not be feasible on everybody's asparagus bed, but I mention the fact that irrigation will enable the plants to resist the rust, for this reason, that it shows that if you keep the moisture and the food material ready and available at all times during the hot summer months, the plants will better resist that rust; and if you cannot irrigate, then just what Professor Popenoe says, the supplying of manure and the frequent cultivation of the bed will come the nearest to supplying that deficiency in water and food material of anything that I know of. Plenty of manure and plenty of cultivation usually keep water and food supply enough in the soil to make the plants very resistant to the rust. Only one year have we had sufficient drought or hot weather that well-manured and well-sultivated asparagus plants have suffered very much from the rust. The next year after that, when the rainfall was better distributed, the rust was almost entirely resisted again. I believe the asparagus growers who will manure and cultivate, and, if possible, in addition, irrigate, where they have facilities, can grow asparagus without any serious difficulties from the rust, except during very exceptional seasons of severe drought.

PRESIDENT HOLSINGER: Is it a fact that the kerosene emulsion destroys insects that are beneficial, as well as those that are injurious?

PROFESSOR WHITTEN: In my own work, I steer clear of that side of it, because we have an entomologist. The experimenting I have done has been mainly with fungi. Professor Popenoe will be better able to answer that question than I.

PRESIDENT HOLSINGER: I see that one of the most able of American horticulturists has just come into the room. We want to see him, and I, therefore, take great pleasure in introducing to you Wesley Green, secretary of the Iowa State Horticultural Society.

SECRETARY GREEN: I am honored by this opportunity to address you. I notice you have some difficulties in fruit-growing, as well as we Iowans. I noticed a number of orchards as I came here from Kansas City that showed some signs of decay and old age, a condition which we frequently meet in the West: a condition which is brought about more by climatic conditions than anything else. We have occasion frequently to complain of Kansas hot air, and it may be that that has to do with this condition of the orchards. The hot air which comes from this region, extending from Mexico to Canada, has its effect upon the climate and has a very detrimental effect upon our trees. It is really the cause of the lack of tree growth—this and the lack of moisture. I think perhaps more loss occurs from the drought of winter than from the drought of summer. I notice in our state, where we have about one-half less rain in the western part in the winter, that we have very much less tree growth. Trees cannot grow unless they have moisture continuously. They must have it during the entire season, summer and winter. There is more or less loss of trees during the winter for this reason; but I must not interfere with your program. I am very glad, indeed, to meet you, and thank you for your welcome.

J. W. Robison: At first I was in doubt a little as to the variety of hot air Secretary Green referred to. The variety he complains of is not Kansas hot air, but comes from beyond. It is an interesting proposition with which we have had to deal very largely in the last year, and it is only passing over. We are willing to get rid of it as quickly as possible, as we shall do. I might say that since the settlement of Oklahoma and the Indian Territory, and irrigation further west, some of the other soil has been moistened up and covered with foliage and cultivated, and we have very much less of the hot air than we had in former years, and we hope the complaint of Kansas hot air will be less hereafter in states north of us than it has been in the past.

PRESIDENT HOLSINGER: We are indeed specially favored with delegates from abroad. We have a number of distinguished gentlemen with us and are delighted to have them here. We will have a few remarks from our distinguished friend from the Dakotas, Professor Hansen.

PROFESSOR HANSEN: I come from the plains of South Dakota, one of the most fertile states in the Union, where we are endeavering to solve some problems in horticulture and other things. We have our eattle on a thousand hills—and hills not very tall, either. I think Kansas is one of the greatest states in the Union, and if you don't simply sit yourselves down in your easy chairs and think you have perfection, it will be well for you. Keep on laboring and endeavoring to get something still better than what you have. If you can get that idea well into your minds it will be well for you. I thank you.

PRESIDENT HOLSINGER: We have a gentleman from Arkansas with us to-day and will hear from him. I now present to you Mr. E. S. Culver, of Mammoth Springs, Ark.

MR. CULVER: I am not a native of Arkansas, but nearly so. I have been there now twenty years, and when I am there twenty-one years I will be a native. I was raised in Ohio and Illinois. I have been in Iowa, and lived a while in Kansas. I am proud of the state of Kansas, and am proud of her horticultural accomplishments. The matter of horticulture is of

great interest to me, and I could talk to you all day about it; although I am inclined to be somewhat like the small boy, who, being asked a question by his teacher, replied: "I know a good deal if I could just think of it." This is the first time I have had the pleasure of attending a Kansas meeting. I am very glad I came. We have a fruit country where I live, in the northern part of Arkansas. We have the largest springs in the world. Our town of Mammoth Springs derives its name from our springs. It flows 65,000 cubic feet of water every minute, and Spring river has its start right there. We have a cotton-mill there which is a considerable enterprise. We have a flour-mill of 500 barrels daily capacity. Our fruit interests in the neighborhood of Mammoth Springs are immense. We have about 125 fruit-growers engaged in the business. Fifteen years ago I put out a strawberry patch, and since that the industry has grown wonderfully. I had the first commercial strawberry patch in that county, and, I think, the second commercial orchard. We have never failed, but one year, in raising fruit, and that was in 1900, when we had a hard freeze. We raise some of the largest fruit there that I ever saw. I thank you.

Recess until 1:30 P. M.

Afternoon Session.

THE IDEAL PLUM AND HOW TO GROW IT.

By PROF. ALBERT DICKENS, Kansas State Agricultural College.

As with all other ideals, the ideal plum exists only at the present time in the imagination. Usually in the imagination of the enthusiastic nurseryman it has been given some certain name and propagated as a variety; but when that ideal became a reality and was subjected to the conditions of real culture, it was usually found that the ideal plum existed only in the imagination and the future.

Ideals are evasive, elusive, or they cease to be ideals; and the plums that the nursery catalogues describe in glowing terms are found upon actual test to have weak points and usually fall far short of what our imagination had pictured. Various plum growers have definite ideals. The ideal has reference to the plum as it may be, the plum as it should be, the plum as we wish it were; and to talk of plums, forgetting the plum as it is, is a task for which I have no taste and no inclination to discuss.

The ideal plum is the plum of the plant-breeder. It shall have none of the faults and all of the particular excellences that any one plum of the present time has or has not. The plant-breeder is the only man who has any business with the ideal plum. The matter of combining the best characteristics of the different species of plum in one composite variety is the idea of the plum breeder. The man who has never tried this particular problem has no idea of its difficulty. That correlation of parts which gives us in the extremely hardy varieties the close stem, thick leaves, tough bark and tough skin has not so far blended well with the thin bark and light leaves that usually accompany the highest quality in thin skin and juicy, tender flesh. It is the same problem that the dual-purpose animal-breeder has always confronted, and up to date the solution is not far advanced. The

horticulturist is concerned with the plum as it is and the best possible forms of known varieties grown to the highest degree of perfection.

The ideal plum is a combination of all the good points of all the species of the plum genus. The description of the ideal plum would probably not vary much from many of the varieties that are listed in our nursery catalogues, and would probably read: "Large, fine golden color, with red cheek, light bloom, strong stem, never falling from the trees, even in high winds; skin very thin, delicate, pleasant to the taste, disappearing when cooked, and yet tough enough to prevent attacks of the curculio; flesh yellow, sweet, very juicy, but firm enough to preserve its shape when canned; flavor best; trees strong, vigorous, handsome, readily propagated from green or ripe wood cuttings; not subject to disease, borer-proof; blossoms fairly hardy and self-fertile; regular, heavy, sure bearer; fruit-buds well spaced along the branches, never requiring thinning." Such description at the present day and age is about as far from the real as the ideal well might be.

It will not do to wait for the development of this plum. There are millions of buyers, millions of hungry men and women, not to mention the children, who are accustomed to plums and plum products as a part of their diet, and who are fairly well satisfied if they can get a reasonably fair product of the plum as it is.

Whenever a choice is to be made, whether of fruit or friends or faith, we can only expect to approximate our ideals, and the Kansas grower insists that the principal points in his plum ideal which he refuses to relinquish are regularity of bearing, hardiness, and quality. In Kansas we cannot have the first without the second, and we will even sacrifice something of the third for the sake of the first. We know we can grow plums if we will not ask everything of a single variety. Some of the idealists in the plum-crank fraternity are exceptions to this group of practical horticulturists, and would rather grow a single crop of high-quality fruit during the life of the tree than to sacrifice quality for hardiness and productiveness.

We cannot quarrel with a man concerning his ideals. If a man says he likes a variety and wants to grow it, that is his business; but a man who recommends varieties, not as an idealist, not as a nurseryman, but as a practical grower, must be able to weigh the faults and failings of a variety against its good points.

I believe that most growers and most plum users regard plums as they do their other friends in the animal and vegetable kingdoms, from the standpoint of averages, and do not measure them by the most idealistic ideals. Most of us would rather have bushels of the Wayland, Wild Goose, Clifford or Chas. Downing than pints of Yellow Egg or Green Gage; there is more in it, even though we do lower our ideal. The plum grower, like the politician, must aim for results and be practical. A crop of Weavers, Miners, Moremans, Wolfs, Quakers or Golden Beauties every year is better that a crop of the Wickson or the Climax once or twice in a decade. The Lombard, Damson, Golden American or even Burbank every other year is better than a few Washingtons or Silver Prunes once or twice in the life of the tree. Not one of these even approximates the best ideals. This paper is not a list of practical plums; this has been gone over in reports and bulletins so frequently that it would not be permissible here.

Do not understand me to say that these plums are not good. Every one of them is worthy of a place in a Kansas plum orchard. They do not closely

approximate the ideal in form of tree and character of fruit, but they usually bear. They survive heat, drought, and cold. They are reasonably certain to give satisfactory prefits when grown in a commercial way. They are good to eat, good to can, good to sell. The growing of them has been discussed here so thoroughly in former years that I am inclined to abridge a part of the discussion very considerably.

We find plums succeeding in a great variety of soils, and the best success in a soil that is well cared for, kept free from weeds, well aerated, well drained, and with a plentiful supply of plant-food.

The orchardist has no business setting a tree older than two years, and in most tests one-year-old trees have been as valuable as two-year-olds. The growing of a well-shaped plum tree is not an easy matter, unless it is given frequent and careful attention. I believe that most of us grow too much wood in our plum trees. We have a reasonably well-founded notion that plums do not stand pruning well, and we go to the extreme of letting them go with as much wood as possible, and take our chances of ever getting a crop thinned when we get one. Trees that are grown with more open head than are plums naturally formed usually bear a better quality of fruit (quality here having special regard to color and size) than trees that are run on the "let alone" system. It is not an easy matter to pick plums from our "cultivated native" varieties when the top has been allowed to grow thick and brushy. Many of these sorts are thorny, and the time speat in thinning out the top would be saved many times in the picking.

Experiments have continually proven that it is no more difficult to raise a bushel of big plums than a bushel of small ones, and it takes no more time to pick a half or two-thirds of the plums when they are small and the other fraction at maturity than it takes to pick them all at maturity and have fewer bushels and poorer plums.

All the plums that we have grewn have made better trees, are producing better fruit, where they have been kept well headed and been given frequent, careful pruning, than have trees of the same varieties that were carelessly grown. The time to form a tree is when it is growing, and I am quite certain that all our plums are the better for some careful work during the first few seasons' growth.

Our real plums—the ones we have now, not the ideals—do not grow from cuttings, and we are still hunting for a better stock than the peach. I believe that, up to date, the peach is the best stock for our plums. It is cheap; all sorts take as well upon it as upon most other stocks; some Americans being the exceptions.

Trees set from sixteen to twenty feet apart will need good, vigorous pruning to keep them in bounds in later years, but I believe that we are demonstrating that this treatment will pay in bushels and quality.

Thorough cultivation, deep enough to cover fallen fruit and leaves, is good practice. The fight with the curculio is a constant one, but in the larger plantings fair crops are being grown where the fight is carried on with any vigor whatever. In recent years, the brown rot has caused greater losses than the curculio, and on some varieties the scab has done considerable damage. The maintenance of sanitary conditions is, of course, a necessity. The man who sprays his trees that are still carrying large numbers of mummies from the last year's crop may be expected to report that spraying

does n't pay. The late winter or early spring spray is, in our mind perhaps, the most important, as it helps the tree to start out vigorously. The fungus usually is not noticed se early as on trees not so sprayed. For later work, the old stock applications of Bordeaux mixture during growth and the ammonia solution of copper carbonate still stand. Japanese varieties, like peaches, will not stand the Berdeaux full strength without injury.

The ideal plum, when it comes, doubtless will be marketed in silk-lined baskets, carefully wrapped in crepe paper; but our present practical plum varieties are handled well in six-basket carriers, and the tougher skinned sorts are successfully seld in most markets of the state in peck and half-bushel baskets.

Growers are more generally realizing that plum growing, like every ether form of the fruit business, demands very careful attention to all the details in order to secure good results. The ideal plum has not arrived. The date of its coming is not yet announced, but there are enough real plums in the list of every grower to furnish an abundance of good fruit for every market, if they are only set and cared for.

The ideal fruit is a Jonah—it inclines growers to depreciate the value of the fruit they already have; inclines men to wait for something better before setting their orchards, and net to set stuff that must be pruned and thinned and picked and sprayed in order to secure marketable fruit. Real plums, well grewn, add relish to our bread and dollars to our bank accounts, and for the present generation of Kansans are a very fair substitute for any ideal plums.

THE IDEAL GRAPE AND HOW TO GROW IT.

By A. L. ENTSMINGER, Silverlake.

For mere than forty years have I striven to sttain these results here in the state of Kansas; yes, I will say, in Shawnee county. My most persistent efforts date from 1879, at which time I determined to, if possible, find the "ideal" grape. Every variety that I heard of which seemed to have merit (or puff) found a place in my vineyard. About 150 varieties were tested; and yet, after all these efforts, I failed to find the ideal grape. Although many of these varieties proved to be quite satisfactory, they were not enough so to take the place of the old and well-tested varieties, such as Moore's Early, Worden, and Concord.

I have also given considerable time to the production of seedlings, which in some instances are very encouraging; one being the earliest in my vineyard by from ten days to two weeks, and the most hardy, as to cold and heat, of any variety tried. My latest efforts have resulted in producing a late variety which is very satisfactory, to myself at least, and seems to be the nearest approach to the ideal grape. In bunch and berry it is fully as large as Worden, and has never been affected in the least by cold and heat; in fact, it has not developed any defect, and the parent vine has borne fruit five seasons, and is productive to a fault. It is fully ripe about the first of October; is of a very dark color and good flavor. Another good seedling is the "Stark Star," which I have contracted to propagate under restriction. I have fruited this variety two seasons and it is a wonder to look upon; it is also productive to a fault. This last season, notwithstanding the destruction of many varieties by the hard freezing of 1904 and 1905, these vines

came through the winter in splendid condition, and many two-year-old vines (from grafts) bore fifty to eighty bunches—all large, many weighing one and one-fourth pounds. If no serious defects develop, this will prove very valuable to the Kansas vineyardists and to those further South.

As to how to produce the ideal grape, I will say, by eternal diligence in care and attention. I would not expect good results without thorough cultivation. For this purpose I use various implements. First, in spring, the common two-horse cultivator for the middles and the one-horse, ave-tooth or shovel cultivator next to the vines. These implements I keep moving vigorously, continuously, the main object being to keep the fruit growing as long as possible, thereby increasing the size and quality. In this way I have kept them from ripening for a week or ten days, thereby eften avoiding a glutted market. However, it is well to bear in mind that when the fruit does not ripen it should be removed from the vines at once, or the vines will be so overtaxed that they will not recover from carrying their belated burden to meet the succeeding winter and many vines may perish.

I once made the remark before the Shawnee Horticultural Society that I could hold or retard the ripening of my grapes two weeks or more by keeping up a shallow cultivation all the time the fruit was ripening. One of the brothers afterwards came to me and said: "Entsminger, you have told us how to keep our grapes from ripening; now tell me how to make them ripen." My Moore's Early was not then (August 15) ripe.

I would spray before the leaves appear with strong Bordeaux mixture or copper sulfate alone. The second spraying would be about the time the blossoms were preparing to open, for the purpose of destroying the fungus which is so destructive to the pollen, causing non-fertilization. At this time I would also use Bordeaux mixture, not very strong. I would keep up apraying all through the season, if necessary, until the fruit begins to show pelor.

As to pruning, I will say prune close, if the vines are very vigorous. In training, I practice the Kniffin system. With very prolific varieties one to two buds is sufficient; should more bearing wood be left, the fruit will be small and very uneven.

In conclusion, I will say that my vineyard is situated in the Kansas river bottom, above flood line, on the best of farm land; and I wish it understood that I only speak of methods which I have found come nearest to producing the ideal grape.

G. S. ESPENLAUB: I have simmered down to about three varieties. I think Moore's Early, Concord and Woodruff Red are the best, and I have made more money off of those varieties than any others I have tried.

GERALD HOLSINGER: I think, around Kansas City, the list as given by Mr. Espeniaub would certainly be preferable to that given by Mr. Entsminger. The three that he named included the Worden, and, in a commercial vineyard, with the conditions as they are around Kansas City, I do not think the Worden has any business whatever. The last two or three years we have noticed the Woodruff Red coming to the front. It seems to have a long season, nice color, and has been commanding and selling for a high price. We do not have it except in very small quantities, on a rented farm, and it has seemed to give good satisfaction there; but those who have had it like it very much. I remember one firm—Berry Brothers—be-

gan marketing when we were marketing our Earlys, and when we were marketing the Concords they were still marketing. They seem to hold on very well, do not drop, and, if this last year is any evidence of what they will do in an ordinary year, the Woodruff Red is certainly a good one for the commercial vineyard. The Worden is a fine grape, but it cracks easily and does not ripen evenly, and unless it is marketed quickly it goes to pieces very fast. So far as we are concerned, we are taking out all the Worden.

PRESIDENT HOLSINGER: Realizing the conditions under which these two gentlemen have expressed themselves in regard to this grape, the question of elevation ought to be determined. The fact is that your grapes are in low bottom lands, and Mr. Espenlaub is up on stiff, high, clay land. Those are things that must always be considered in the growing of fruit.

GERALD HOLSINGER: But both of us are recommending the same grapes.

A MEMBER: I grow the Woodruff Red. It is an elegant grape. You can pick a basketful of it that will look better than any other basket of grapes you can put on the market; but with me they have rotted badly. I have had most of my crop rot before they got to market. I am in the river bottom, too.

Mr. ESPENLAUB: I have noticed in the last six or eight years the coldest winter we had was in 1899, and I know one vineyard that had everything in it suffer, and yet it bore more Woodruff Reds that year than of any other variety. I think it is one of the best varieties we have.

- F. L. KENOYER: Are there two strains of the Worden grape? I have purchased twice and planted them, and they ripened very unevenly every year. There will be some grapes more than half green while others are ripe on the same bunch. Others say that they ripen very evenly for them. Can any one tell whether there are two strains of them that ripen differently?
- A. C. GRIESA: I have raised the Woodruff for the last eight years with perfect success on second-bottom land; it never has rotted, always bore an abundant crop, and sells well in market. The trouble is that if you prune too closely it will not produce well. You must learn how to regulate the amount of fruit by proper pruning.
- F. L. KENOYER: I believe you failed to understand what I said. On the same bunches, nearly every bunch in the whole vineyard, whether the vine has been pruned close or not pruned at all, it happens every year that nearly every bunch will have green grapes on it, some about half grown and green, and others full grown and ripe. This is the Worden grape I am asking about.

PRESIDENT HOLSINGER: What about the Wyoming Red? With me it is the prince of all grapes. It is an improved Delaware, I take it. I would like to know if any one can offer anything on the Wyoming Red?

WM. CUTTER: It is rather small for market. It is a great bearer, but the fruit is small. I look upon it as a rather inferior sort to Woodruff Red. It has the same taste, but is not so satisfactory with me as the Woodruff.

GERALD HOLSINGER: From what I have seen of it on the market, it is too small to sell well.

THE IDEAL STRAWBERRY AND HOW TO GROW IT. By Frank W. Dixon, Holton.

Most of us will say that there is nothing ideal (perfect) under the sun. We want to disagree with those people who make such a statement when it comes to strawberries. There is an old saying that originated in some versatile mind which reads: "God might have produced a better fruit, but He never did."

We believe that we are justified in speaking in this paper of the strawberry as ideal for the table, regardless of the size of the fruit. Weather conditions have more to do with producing ideal strawberries than anything else. To our taste, a great many varieties now under cultivation are ideal when ripened under the most favorable conditions. Of course, the very earliest berry we have now is not ideal according to flavor. We mean the Excelsior. But we have another which is not much later—August Luther which is one of the very best for the table and home market. Who can think of a better fruit for the table than a succession of varieties, such as the Bederwood, Bismarck, Crescent, Splendid, Warfield, Stayman, Sample, Aroma, and Gandy? Each and all of these varieties are ideal for the table or home market when ripened under the best conditions. Can any one imagine a more delicious dish than a dish of the latest Gandys, fifteen, twenty or thirty of which may fill a quart box? It is no wonder that the fruit-man, who has such fruit on his table three times a day for a period of thirty or sixty days of the season, has no taste for strong drinks. Did you ever note the fact that when visiting a brother fruit-man the last thing you are likely to be invited to partake of is strong drink? If there is anything in this world that will reform it is fruit, the earliest and most ideal of which is the strawberry. When winter's snows cover the ground, imagine, if you can, a more delicious dish than a dish of Warfield, picked and canned at the very best time. There is no better variety for canning purposes than the Warfield. We must, however, say a good word for the Dunlap. It is a close second to the Warfield when it comes to canning, and it is more productive and grows better plants.

There may be some who will advise you to plant some of the very new varieties to get the ideal strawberry. It is more than likely that they are looking for a good price for their plants. It is all right to plant new varieties to give them a test, but many of the older ones produce ideal strawberries. The ideal strawberry is not hard to grow, but there are some who would make you believe that it is. We have grown berries in Kansas, in Jackson county, for twenty-four years, and in all that time we have never failed to have ideal strawberries on our table every season for a period of not less than three weeks and not to exceed seven weeks.

There are various ways of producing the ideal strawberry. Any soil will produce them, and ordinary care and cultivation of a small plat of ground will produce ample for any family. Prepare the soil by a good plowing in the fall and, if you wish, apply a good coat of well-rotted manure; harrow well until the ground is fine and level; then a plank drag may be used to crush all the small clods and to get the ground perfectly smooth. Mark in rows three and one-half feet apart and put plants about eighteen inches apart in the row. In planting large areas we use a machine, but that

is not possible for the small grower. A dibble or spade will answer the purpose very well. Be sure to firm the soil well about the roots of the plants and you are sure of having a first-class stand of plants, provided, of course, you have good, strong plants to begin with. We would not advise going to a neighbor's old bed to procure plants. You do not know what you are getting, and are likely to get weak plants that will not grow; and then you might get plants with imperfect blossoms and they will not produce berries; but we would advise you to send to a reliable plant-grower, and if you do not know anything about varieties, ask him to send you a succession from the earliest to the latest varieties. Three or four varieties are enough for the average grower.

But we do not believe that this paper calls for experience from a commercial standpoint. It calls for the ideal strawberry for the table. Very soon after you have finished planting, cultivate with a hoe or garden-rake. If you have a large area of plants, you can use a weeder with the best possible results. Keep up cultivation at regular intervals throughout the summer. Allow no weeds or grass to grow, but, as soon as the plants begin to make runners, place them in the regular position where they should be. We have found that the narrow matted-row system is the best. Allow plants to run as thickly as they please and then thin out in October, using a narrow hoe for the purpose, cutting square across the row. In this way it can be done very quickly and cheaply. On rich soil you cannot produce the ideal strawberry unless your plants are thinned out. If the soil is too rich, your plants will be too thick and will not produce any fruit at all. Thinning allows the sun to get at them, and that has a great deal to do with producing the ideal strawberry. If your berries are grown for the near-by market, most any of the well-known varieties, probably Warfield, Dunlap, Aroma, Gandy and a few of the others are the best. Now you have brought your field to the mulching period. They must be mulched as soon as the ground is frozen, the quicker the better. Use prairie hay if it is possible to obtain it, as there are no weed seeds in it. If it cannot be secured, the next best thing is wheat straw, although you are likely to have trouble with the wheat. Your berry-field is now ready for its winter's sleep.

In the spring, choosing a time according to weather conditions, remove the mulch and place it between the rows, but do not be in a hurry, unless you have a portion of very early berries and want some for early use, in which case it may be removed from that portion of the field. Your field is now ready, and will produce an ideal strawberry, with moderately favorable weather conditions; and we are sure that any one who will follow the instructions given above will have plenty of ideal strawberries for his table, and can invite in the neighbors to help dispose of them at any time, or can make a handsome profit out of a small area if he should wish to place the surplus berries on the market.

A few words to commercial berry-growers might not come amiss. Every strawberry grower must find the varieties best suited to his locality. We would suggest that the following succeed over a large area, beginning with the earliest: Excelsior, August Luther, Bubach, Climax, Splendid, Senator Dunlap, Warfield, Uncle Jim, Windsor Chief, Aroma, and Gandy. For the South: Klondike, Lady Thompson and Michel's Early might be added. For irrigation districts: Bederwood and Brandywine are among the best. The commercial planter must think out his best and cheapest

way of planting and caring for a large field of strawberries. Do not be afraid to invest in the best possible labor-saving tools; a machine for planting; weeders; double-row cultivators; first-class hoes, etc. Be sure to much early and well.

A MEMBER: I indorse everything that Mr. Dixon read except the mulching with prairie hay. I had poor results on account of the seed in the prairie hay. I have one bed now which the first year we mulched with prairie hay. That was two years ago, and now we have almost a solid sod of prairie-grass there. I shall not use the prairie hay again. I prefer taking good straw, and try to get it as free from wheat as possible.

MR. DIXON: I never had a field remain long enough after I had mulched with prairie hay to become set with prairie-grass again. I have had fields mulched with prairie hay to remain three years afterwards, mulched every season with prairie hay. The great advantage of prairie hay is that it won't blow off, and there is no weed seed. I would rather risk prairie hay than anything else for mulching.

WM. CUTTER: I never grew strawberries in such quantities as Mr. Dixon and many of the rest of you, but I have tried enough to test different kinds of mulching. The best success ever I had was with coarse stable manure. The berries grew much larger and stood the drought better. Of course, it brings more weeds and makes more work, but we thought we got extra berries enough to pay for all that.

E. S. CULVER: In our section of the country, in Arkansas, we do not mulch at all. It is really not necessary in one sense. Some keep their beds perfectly clear and clean, and they do not get as many nor as fine berries as we do. We have a new mulch there—crab-grass mulch. We cultivate our berries there through the season up to about the last of August, and then we stop and do not cultivate at all. Of course, we allow no weeds to grow, but all the crab-grass that comes up from that time on we allow to stand. I have four acres now, and at one time the crab-grass was eighteen inches high all over the field, and it didn't seem to affect it at all. We leave that there until spring, and then we go over it with a brush harrow and brush backward and forward over the row, and that levels it down. The vines grow all winter. When we mash this grass all down, the new strawberry growth in the spring comes right up through the crab-grass, and there you have your berries right on top of the mulch.

MR. McNally was called for, and responded as follows:

Mr. President and gentlemen, I am very much interested in this talk about strawberries. As to this crab-grass proposition, I do not believe there could be anything, if the idea got among strawberry growers generally, to hurt them more. You cannot raise two crops on the same ground at once. We have found that true in southwestern Missouri, and I believe you can raise strawberries there if you can anywhere. During the last two years we have had some that have tried this "mulching by nature"—that is, letting nature do the mulching—and they are making a grand mistake; but they have been favored a little bit by having extremely wet seasons, and this has kept the roots and ground in pretty good condition and allowed the two crops to come on at one time—that is, the grass and some strawberries. As a rule, however, a man who will let crab-grass alone and allow it to do his mulching will

not pick one-fourth the quantity that the man will who keeps his beds clean and works them for all there is in it. We have found in our fifteen years' experience that mulching by artificial means, by straw or something like that, is the best plan. Just as soon as our berries commence coming on the market, we have noticed that the mulched berries would drive out the Arkansas berries at once, because the latter were so full of sand. A berry that is full of sand is not as desirable as a mulched berry that is clean. We have a new early berry that we are trying in southwestern Missouri. This is a Texas berry that will hold up in size and does not run down, on account of not being a very good plant-maker. For a new variety, as a plant-maker, this is the most ideal one we ever had.

PRESIDENT HOLSINGER: How long do you fruit your plants before renewing?

MR. McNally: From three to five years.

PRESIDENT HOLSINGER: Give your treatment of your plants.

MR. McNally: After the bed is picked—immediately after is better. Some growers that make the best success burn off within a day or two after the last picking, and then, putting the mulch in between the rows, disk it and work up the mulch. By using these disks now it appears to tear up that straw and give better results. Then cultivate. You can reduce the row to eight or ten inches. Then harrow crossways, to thin out to about the desired number of plants. If the row gets too thick by fall, do some more harrowing. This is followed by mowing immediately afterwards and then using the disk, by taking off a part of it and cultivating the same as for a new bed.

GERALD HOLSINGER: After plowing up a bed, how many years would you allow it to lie before replanting strawberries?

MR. McNally: Three to five years. The strawberry takes something from the soil that has to be built up by some other crop. You can easily tell an old strawberry bed in a wheat-field or corn-field.

J. W. ROBISON: What is your object in burning?

MR. MCNALLY: It is a kind of mystery to me, and I believe to others. I don't know as I ever heard it thoroughly explained. Ten years ago it was the custom, immediately after picking the strawberries, to mow the vines, and, as soon as they wilted enough, to start a fire and let it run over the bed; but for the last six or seven years that has not been a success. Either the seasons have not been as favorable, or our ground has gone back on us.

PRESIDENT HOLSINGER: Is it not rather a dangerous thing to burn off, for the reason that the trash and leaves that are cut off will hold the fire for some time and perhaps destroy a large part of your plants, unless you have a very strong wind? We thought we could do it. We mowed our plants and let them lie until thoroughly dry and then set fire to them, and that bed never did amount to anything afterward. We thought that there was too much fire in it, and that maybe the wind was not strong enough to whip over and burn it quickly enough.

A MEMBER: I believe it makes a good deal of difference whether the ground under the mulch is dry or wet. If the ground is dry, I believe the fire will damage the plants very seriously.

MR. BROOKS: I don't believe there is anything equal to prairie hay. One gentleman spoke of stable manure. I think that is good under certain conditions and for certain plants, but I prefer prairie hay.

- B. F. SMITH: Did you ever try the pedigree strawberries? There are men up in Michigan that have been advertising them for years. Is there any such thing as a "pedigreed" strawberry?
- F. W. DIXON: I never tried it. I thought my own better. We grow better plants in Kansas than they grow in Michigan.

A MEMBER: We have used manure for mulching for the last ten years, and while in Lawrence you can get any amount of manure for hauling it away, we have paid ten dollars a year for the manure from a certain stable which, for feed and bedding, uses enly prairie hay, and it has given us the best satisfaction. Now, in regard to a strawberry which I think was mentioned here, the Cardinal. I fruited it last year, and while another berry has stood at the head of the list for me for the last ten years, it was beaten this year, as were thirty other varieties, by the Cardinal, both for size and quality.

THE IDEAL RASPBERRY AND HOW TO GROW IT. By A. H. GRIEBA, LAWIGHOO.

Get the best in cultivation and grew it, with yourself behind it. best may be in your locality; or some one, somewhere, may have a better kind; if so, try that. The aim should always be high. Never stop with last year's success or failure; the season may have been at fault. The result is not alike each year to make a fair test. With these thoughts in mind begin to work; get the plants in prime condition, on well-prepared soil; plant in rows three by seven feet apart; then, and always after, depend on clean culture for best results. For this a Planet or other good smallteoth cultivator and a hoe freely used are ideal implements. One-year transplants or tips are the best plants. Cultivation should stop in August, to give the plant time to ripen its wood; then in the pleasant days of early winter trim out all old wood and cut the new growth back to three or four feet, like a thin hedge after trimming. It is seldom they need the new wood cut out entire. Four or more good canes make a good growth for a crop of fruit. The trimmed brush should be cleaned up and burned, for several reasons. Then in early spring cultivate so as to throw the dirt towards the row; later culture and hoeing will level it again. Cultivate just before the fruit ripens, so you need not go in to brush the fruit off when ripe, and keep them clean till in August, when it is best to stop. This is simple; any one can do it, and every one should do it to secure a supply of one of the richest berries supplied by a wise Creator for man's good, to ripen when he is most in need of it.

But what is the ideal? That is as we take it. At present the demand in the markets is mostly for the black varieties, while the reds bring the highest price. The ideal seldom gets on the market. They want a clean berry, firm enough to stand the rough travel (color and flavor are secondary points there); while for family use a far more juicy berry, of brighter color and higher flavor, finds a welcome. The ideal for family use can be one, and for market another variety. The family can and should have the best, and

have it abundantly, for table and canning. Here are outlines of the requirements indicating the ideal.

Long ago the Doolittle, Mammoth Cluster, Ohio and others were the ideal, the best known, best to be had or found; but the mark of perfection has been transferred to better kinds of later origin. Among these the Kansas and Cumberland are now in the lead. They are so far better than the older sorts there is no need of comparison—only pity for the man that as yet has not the best. The Kansas is the most vigorous, most hardy and most productive good-sized blackcap raspberry. The Cumberland is a fair grower, not quite so hardy, but produces a larger late berry that sells well. In these we have two kinds that are nearly ideal, yet both have faults, and now comes the problem how to produce the ideal (?) raspberry. It should be better than either—one that produces an ideal berry on an ideal plant. Favorable soil, good season and culture may help, but we need a kind that has the inherent quality in itself to grow the fruit and stand the climate; one that will withstand the changing seasons and diseases. That should be the basis. It should be productive. The fruit should be solid color, and be firm and of good qualities. Similar quality is demanded in the reds or any other color.

To stop here would leave us in the dark, hopeless as to where to get the ideal, since we have it not yet. To depend on culture is nothing sure; to expect bud variation is too seldom realized—never known on raspberry. The only way is by seedlings from our best sorts now grown. Raspberries, like all wild fruits, reproduce from the seeds. They have reproduced so long that each type was firmly established by culture and the help of birds to distribute the seeds. New plants came here and there with new merits. Slight though the changes were, this has continued, till we sometimes thought we had the ideal, but the weakness showed itself later, and a better one was leeked for; and we are looking for it now. This looking should be followed by working for it. This work should be among the seeds and seedlings. Select the best of your fruiting kinds; from them select the best berries from the most healthy plants; get the seeds out by mashing the berries; squeeze out the juice; then with the pulp mix dry fine sand till the whole is dry; keep a little time, or it may be planted at once; then watch for the seedlings to show their heads; if it gets dry, apply water; do not allow the first weed to grow, but watch them daily; see in the little plants the possible future favorites they may be, and look for the points in their make-up that would entitle them to such honors; discard early all weaklings, any affected by disease (it will show here if you will see it); pet the strong, as they will need it, as a strong boy will need direction by a good education, so these youngsters will respond to good care. These plants can be reset in rows, but are better to remain in the seed-bed till the next spring. They may need a cover of straw or hay or leaves. In the spring they may be set in rows closer then for fruiting, as many you will find worthless, and these should be dug up as soon as they show any plant weakness; and with narrow leaves they are not worth waiting for; but select those with strong canes, broad, thick leaves, with large, well-colored fruit, and see if you have made the hit of your life. See if you have raised the average of the size in berry, on stronger plant. If so, you have done well. Two or three years' fruiting on your place will prove the worth of the new kind you have produced.

The production of new blackberries and strawberries can be done in the same way, but do not attempt to pollenize certain flowers and save those seeds for your venture; it will never pay. The work is too small—the result too uncertain; but you have reasonable hope of success, to take seeds from best fruits of the kinds you like to grow, and plant them, watch them, and see them grow. Herein is the way to obtain the ideal.

Mr. Brooks: I would like to ask which has been the most successful raspberry in this state?

WM. Brown: I have tried nearly all the varieties, and the Louden has proved to be the best by all odds.

B. F. SMITH: The Miller proved best with me.

A MEMBER: Has any one made a success of raising the Louden for market?

- WM. Brown: I would refer the gentlemen to Whiteker Bros., of Topeka. They have paid us better per acre than any other variety, whether black, purple, or red. We have raised the Miller, and we are now raising the Early King, but my prospects for the next year for the Louden are much better than any other.
- S. J. BALDWIN: I have raised three varieties of red raspberries—Miller's Red, the Turner, and the Louden. The Louden is the berry that produced the fruit and brought the market price, a price higher than any other berry I ever seld. This last year I did not sell a single case of the Louden for less than \$3.25.
- F. W. DIXON: The Cardinal has proven to be the most profitable berry we have ever grown, and, if you go after your home market right, you can get a good price for it. The Louden winter-kills too badly.
- G. W. MAFFET: I can tell you gentlemen the way to fortune. I had the Miller Red raspberry, just from New Jersey, and planted one-fifth of an acre, and I got eighty dollars. That was at the rate of \$400 an acre—at the rate. It did n't materialize on a larger scale, you understand, but it was at that rate. The next year there was twenty dollars' worth of them, and for five years following that I have had but a few dollars' worth from that variety—Miller's Red. It was easy to see that imaginary fortune; but when you come to count the dollars inside of your pocketbook, they are not there.

THE IDEAL BLACKBERRY AND HOW TO GROW IT. By JOHN BRAZELTON, JR., Wathers.

Evidently the secretary did not expect me to describe my ideal blackberry, as what might prove to be ideal under my conditions and treatment would not prove so under other conditions and treatment. Here, at Wathena, where hundreds of acres are grown and three or four car-loads shipped daily, we consider that for market purposes the Snyder nearest approaches the ideal, ninety-nine one-hundredths being of this variety. One good point is its hardiness; for while we think usually of the blackberry as hardy as the oak, yet we are so near the prairies that all varieties winter-kill more or less. Another point in favor of Snyder as a market berry—a point, too, that counts against it as a berry for the family garden—is that it is black

before it is ripe enough to eat, with a hard, firm core, making it a great shipper. It is also quite productive and free from disease, being rarely attacked by the deadly orange rust, so fatal to many other varieties. Were I an amateur, and wanted berries only for my own table, I should grow a few Snyder to have fruit fresh for the table, it being about the best variety with which I am acquainted for eating uncooked, if well ripened, and would depend for canning, etc., upon Early Harvest and Rathbun; not Rathburn, as many nurserymen catalogue it, but Rathbun. The wood growth of both these varieties is very tender, and, unless they can be given protection in winter, they will prove a bitter disappointment as far as fruit is concerned. They are of such excellent quality that they will repay a little extra care. Early Harvest is very small, early, and very productive, while Rathbun is very large.

The question of production is not a very delicate one, barring the tendency of most varieties to winter-kill and the securing of varieties to be resistant to orange rust. The blackberry will thrive and fruit on any kind of soil, from the poorest thin, yellow clay to the richest black loam, but is most likely to freeze out on low, rich soil. Planting may be done either in the spring or fall, or during an open winter, as the roots are perfectly hardy. We do not bother about root-cutting plants, but dig from an old patch wherever we can find a surplus. Or, better still, if an old patch has been plowed up and cultivated a year or two, there will be thousands of small plants come from the old roots. If there was no disease in the old patch, I consider these the best plants that can be obtained. In planting we open furrows eight feet apart with a lister or turning-plow, and deep enough that the plants may be set about the same depth at which they formerly grew, or so that the uppermost roots are covered about four inches. Care should be used not to expose roots to sun and wind too long, and all long, straggling roots should be trimmed back, say about three inches from the main stalk, as a very anall root system is all that is needed. If a quick stand is desired. and one does not care for the expense of buying plants, set two feet apart in the row, though three or four feet in time will make as good a stand. During the first season's growth a row of potatoes or corn or most any other vegetable except tomatoes may be grown between the rows. We grew tematoes between two or three rows of a patch several years ago, and, while the rest of the patch grew finely, the rows where the tomates were never did recover completely.

Cultivation the first year should be such as will keep the ground free of weeds and the soil in a nice, mellow condition. The second season a few berries may be expected, if good growth can be had the first season, but the new wood should be cut back, and only a moderate crop allowed to mature. The first crop of berries usually lie down in the dirt unless mulched, but later cane growth is stronger and more upright. A crop of something may be grown between the rows as long as one cares to do so and the plants do not require all the room. Cultivation after a patch has reached full growth consists in plowing first time in spring with an eight-inch turning plow, throwing dirt from the plant, and subsequently plowing with any small cultivator or double-shovel plow up to about August 1, when the diamond plow should be used again, this time throwing dirt to the plants. The hoe should also be used in the row. The cane which bears this year will die as soon as the crop is matured, and all these canes must be removed. The

best time to do this is right away after picking, as the wood is soft and cuts easy, but any time before buds begin to swell in the spring will do. We use for this purpose a sharp hook, made from an old file. When the new canes reach a height of two or three feet the top should be pinched off, which will cause the side branches or laterals to form. They should be cut back in spring to twelve or eighteen inches long, and all weak ones removed entirely.

We will have in fruit next summer Mercereau, Ancient Briton, Erie, Eldorado, Iceberg, Kenoyer, Ward, and Blowers, and it may be there will be among them something nearer the ideal than those we have mentioned.

B. F. SMITH: He seems to think the Snyder the ideal, but I want to say that my customers around Lawrence "go for" me when I take them the Snyder. They are not good enough when they are canned, and while I have grown it much longer than any other blackberry, it does not give satisfaction to the women for canning or preserving.

DISCUSSION OF FREIGHT RATES.

FRANK W. DIXON: Mr. President, and members of the Society, I like to kick when I am imposed on. Nobody in this Society has imposed on me, but somebody else has imposed on me and upon all of you, and I want to register my kick. I refer to the railroads and their charges for hauling our products.

I ship a few car-loads of fruit once in a while, and whenever I have a load to ship I find the freight rates so excessive that there is nothing left for the fruit-grower. I will cite one instance. A car-load of apples from my town, Holton, in Jackson county, to western Kansas, cost me forty-one cents a hundred pounds. There is plenty of demand for apples out there, you know. That rate, together with a little commission to the man out there, does not leave very much for the grower. I believe that as an organized body we can and ought to "kick" and get something out of this that will do us some good. Individual kicking do n't amount to very much. Maybe there are a few here that are big enough to get some rebates, and they will not be apt to favor what I say. But in order to bring this matter before the Society, I move that the president appoint a special committee of three to draft resolutions stating our sentiments concerning the excessive freight rates charged fruit-growers for transportation of their products within the state, looking to a reduction of the same, so that all may have a "square deal."

W. B. EAMES: I object to any such proceeding. I reside out there in western Kansas and raise apples, and I do n't want Mr. Dixon to intrude on my territory.

The motion was seconded.

PRESIDENT HOLSINGER: Let us hear from Professor Van Houten, of Iowa, on this matter; perhaps he has had some experience.

PROFESSOR VAN HOUTEN This is purely a local question. But, while it is a question that may be local, yet it ought to reach far. For example, not many weeks ago we saw advertised in the papers of the United States that the California fruit-growers had secured a special rate on shipments of fruit

to any point in Europe, such as Germany, Great Britain, and France; in fact, any place that can be reached by direct Pacific or direct Atlantic ocean transportation. By combination of the steamship and railroad companies, fruit was shipped from California to Europe at a flat rate of \$1 per hundred. The statement accompanied this that the best rate to any point east of the Missouri river was \$1.25 per hundred. If it is worth \$1.25 to carry to the Missouri river or east, and is only worth \$1 to carry to Europe, I ask in all seriousness how much further they ought to carry it until they would carry it for nothing?

I have heard it said that people sell goods cheaper in foreign countries than they do at home, and I think that is possibly true. I think foreign countries sell their goods in this country cheaper than they do at home, and that fact could be substantiated if necessary. The experience of every man who travels in a foreign country is that these trade combinations affect trade more than we think.

Here we have a proposition that affects every fruit-grower in this country, and there is a principle behind it that ought not to be allowed to exist. For instance, a gentleman has told me since he has been here that he had a chance to come here from away over in Wisconsin, by going around through Illinois and down through Missouri, and then to Topeka, 800 miles out of his way, at the same price he was charged to come direct. Some one may suggest that the railroad could afford to give him that longer route because they couldn't get him unless they did; but the whole theory of the railroad business is that they must be allowed to charge a remunerative rate. If I ride with a man that is on a pass, and I pay three cents a mile, I am paying for both. The whole principle is based on giving one a favor and making the other man pay for it. We, as fruit-growers, are put in this position, and not given favors because we are not located in such a position that we can demand different treatment. The whole principle of railroad traffic is now before the United States Congress, and you ought to make yourselves heard there and now, this winter; and then, when your state legislature meets, make your influence felt there and everywhere until justice is granted. When a railroad rate is made, that rate ought to be taken into consideration in any other rate that is asserted to be unreasonable. If they can carry fruit to Europe for one dollar per hundred, carrying it across the continent of America and then across the Atlantic ocean, they ought not to be allowed to charge any more for delivering it at any point between California and the final destination. That is the principle that I think must be adopted in our railroad construction before ever we get a full measure of justice. (Applause.)

A. L. BROOKE: I agree in part with what Mr. Dixon has already said, but I believe there is a little better way to get at it. Some ten or twelve years ago, while attending a nurserymen's convention in Chicago, this same trouble was up. We had been going it haphazard on this question for some time. There never had been any concerted action by the association up to that time, and I had the pleasure of participating in that little scuffle, and ending it up by making a motion that there be a standing committee appointed by each administration each year on railroad transportation. We started that year with a standing committee on railroad transportation. The National Nurserymen's Association has had that committee ever since, with remarkably good results, and everything that is done with the classifi-

cation committees connected with the railroads is done through that committee. If Mr. Dixon will allow it, I would like to amend his motion to read that this Society have a standing committee on railroad transportation, or freight traffic, whichever you wish to call it, one member of which shall be the secretary of this Society.

MR. DIXON: That is all right; I accept that amendment.

MR. BROOKE: And that all such questions be referred to that committee—all questions of railroad matters.

B. F. SMITH: I seconded the original motion, and am glad to accept the amendment.

(Cries of "Robison!" "Robison!")

J. W. ROBISON: Gentlemen, this is rather a delicate subject for a judge who may have the question come before him to decide. There are but three men in this state who are prohibited by law from bringing any complaint or considering any matter of freight rates without complaint, and those three are the railroad commissioners. They are to determine complaints coming before their board from all sources. The question is quite a large one. We had quite a correspondence with some of the members of the committee that Mr. Brooke speaks of. There are a number of ways of changing the rate without scheduling any change, and one of the very commonest is by classification. If green fruit should be reduced into a lower classification. they might cut the rate one-half or one-fourth without making any difference in the amount paid. There is an effort being made at the present time before the Interstate Commerce Commission to make what is known as a universal classification, and I think every business man should—and I cannot see why every railroad man ought not to-foster and push forward that method of putting all commodities into certain classifications all over this country, in place of having three classifications. As you probably know, there is an Eastern, a Southern and a Western classification. These are the national classifications. In addition, we have some state classifications, as in Texas, for instance. As a sample of the difference in these classifications. I would say that when a car of gas machinery, sent to Butler county from the East, starts from point of origin, it comes on the Eastern classification to St. Louis in one car. At St. Louis they change from the Eastern to the Western classification, and there almost every article in that car is changed as to its classification. The result was, in an actual instance, that it held the car sixty days, to get the contents properly classified, unloaded, and shipped in various cars, each piece on its own classification, thus raising the rate on that car of material more than \$200. Sixty days' time and \$200 in cash is a good deal of expense for a gas-well before they have struck gas.

If this Society has the data with reference to the commodities in question, and if they are charged exorbitant rates, they should formulate a clear, concise complaint, and present it to the attorney for the Board of Railroad Commissioners, and he will present it to the board for adjudication on a proper basis.

There are but few states in the Union that have any better law, in my opinion, than Kansas has at the present time on the traffic question. A new law passed last year changed almost the entire railroad situation and the relations of the railroads to the people of the state of Kansas. One of the first laws was the maximum-oil-rate bill, reducing it to nearly one-third of

the former rate, and the railroads have obeyed and carry oil now almost as cheaply as they can pipe it. It has helped the oil region very much. The question of the transportation of wheat, hardware, groceries, coal, salt and flour has been before the Board of Railroad Commissioners. Each of these matters has been passed on, but they have nearly all gone to the courts, and there will be decided the question of the constitutionality of the legislative act of last year, as well as the question of the reasonableness of the rates fixed by the board. If the bill is declared unconstitutional, there will be no board; if it is held constitutional, then the question arises, Are the rates put in effect by this board reasonable, fair, and equitable? The higher courts of the nation have determined that all rates must be remunerative. We do not understand it to be a question that they shall pay a remunerative rate of interest on the stock or bonds issued by the road, but must pay on what would duplicate such a road as the stuff may be carried over.

This board has been very careful and cautious to make rates such as they believe would be remunerative. As compared with Nebraska on the north and Texas on the south, the general rates in Kansas are low. Kansas in her general rates is higher than Iowa, Illinois, or Missouri. We have been trying to get the rates down to correspond somewhat with the rates in effect in these older states, but have not placed the rates on any of the commodities that I have named a moment ago on a parity yet with the rates in exist ence in those states, for the reason that the higher courts of the nation have determined that the rate charged must be remunerative, and a remunerative rate on a railroad carrying fifty train-loads a day would be very different from the rate on a road carrying only five train-loads a day. We have thought it prudent to make a somewhat higher rate in this state than prevails in Iowa, Illinois, and Missouri, but a somewhat lower rate than prevails in Nebraska and Texas.

The question is for you to bring this matter before the Board of Railroad Commissioners and have it determined—and this without cost to you. The intention of the legislature was to make this proposition as cheap and speedy as possible, and to give equity and justice to all on these matters of freight rates. I might add that we are a board to pass on what is a fair rate to be put in or charged or regulated. Some of our powers are very strong; some not appealable to any court. But most of the rate-making power is appealable to a court. This railroad board has no power to render a judgment for any one. We are only a board to regulate railroads. In fact, we are a kind of young legislature—to make regulations and rules and laws to govern railroads. That is about our status.

MR DIXON: I would like to cite just one instance concerning the shipping of apples. I shipped a car-load of apples, as mentioned before, from Holton to Stockton, Kan., and the rate was forty-one cents a hundred. The rate on potatoes between the same points is twenty-one cents a hundred. Apples can be shipped from New York state to Stockton, Kan., for forty-seven cents per hundred. We all know that potatoes are more perishable than apples. Is there any justice in a charge of that sort?

J. W. Robison: The California Fruit-growers' Association made very strenuous and united efforts for lower rates East, and it seems to us that they have been given a low rate. But it is not a uniform rate. It is the

same, not only on these fruits, but on sugar. The rate on sugar is the same from the time it leaves the Pacific ocean until it reaches the Atlantic ocean. It costs just as much to lay a sack of sugar down twenty-five miles east of San Francisco as it does to lay it down in New York; just the same to lay it down in Kansas as in Maine. They have an organization there that controls almost the entire fruit shipment of the coast. It is a very large state, and is divided up among the railroads according to their own methods of division. They keep that rate down, and their excuse for the low rate is that if they did n't give the growers, in the time of their plentiful crops on the coast, the low rate to get to the Atlantic, the fruit would lay there and rot without being marketed at all; it would not only destroy the market on the fruit that was not shipped, but it would destroy the market practically on all that they raised there excepting the little they consume at home—and that is a very small matter—and that they put in this excessively low rate to encourage the growth of fruit on the Pacific coast. The common maxim of the railroads, as understood generally by the public, is that they charge all the traffic will bear, and one of the considerations in the making of these low rates is what they see fit to term "encouragement" of some particular industry.

Our board has also to act on all requests of the railroads for permission to reduce rates. A brick plant, a cement plant or a plaster plant can come here before the board, as the law requires, but the board must give its consent before the rate can be lowered or increased. The board has never refused yet the request from a railroad to reduce a rate. They have never increased a rate but once. One rate in the last year has been increased, but it was in connection with a request for a number of reductions. That one increase was that the express companies might charge thirty-five cents instead of twenty-five cents for one gallon of whisky—and the board granted that without any hesitation. (Applause.)

G. W. COLLINGS: My opinion is that all of your grandchildren will die of old age before you will bring about any permanent remedy for this thing that you call injustice in railroad rates, as long as you continue to expect to get it through laws and commissions of this kind. The railroad companies are organizations, as you well know, of fabulous wealth. They all band together. They have learned the lesson that the old gentleman sought to teach his sons, when his servant brought in a bundle of sticks and he asked the boys to break it. Each tried but could not do it. The old man pulled out one stick at a time and broke all easily, thus showing that in union there is strength. The railroad companies have long ago learned that lesson. They employ in their service the best talent there is in the country. They employ in their legal service the best lawyers in the country. They lay awake nights studying methods by which they can beat you growers and producers out of all the traffic will bear. From our country they have ascertained that prairie hay, for instance, can be put on the railroad at about four dollars a ton, and the result is that when the market in Colorado for hay is ten dollars a ton, the freight rate is six dollars a ton; when it is sixteen dollars in Colorado, the freight rate is twelve dollars a ton. They allow a man just enough to enable him to put it on the cars.

In the first place, our country made its greatest mistake with the railroads when they did something that had not been done before in the history

of jurisprudence for a thousand years: they granted the railroads the exercise of the right of eminent domain. And I say that until you take some steps to recover that, you will not get any remedy. The reason you cannot get any remedy in this direction is that the railroads have great influence in the lawmaking powers in the state, much greater than you have. They act as a unit and are a power. They are an army, disciplined and drilled and ready for the fray on all occasions. You are a scattered lot of bushwhackers. One man is growing fruit, another cattle, another corn, and there is no unity of action. The shipments of any one man are not sufficient to warrant him to go into the courts and fight. The railroads raise this question and that question in the court, and worry the life out of you in the courts. The reason you don't get rates adjusted, epigrammatically speaking, is, that the tail don't wag the dog-the tail is weaker than the dog. You are weaker than the railroads. In my opinion, the way to get what you are looking for is to bring about municipal ownership of the railroads. That is your remedy, and your only remedy. These other things may bring some temporary relief, but nothing permanent.

A. L. BROOKE: I would like to make a few remarks on the motion before the house. We are not here to-day to advocate what we shall do or shall not do in the matter of municipal ownership of railroads, and I wish to state that I do not believe this resolution is offered in any fighting mood at all. It is simply offered as a business proposition, which exhibits good business sense on the part of this Society. This committee is suggested as an advisory board that can go before the Board of Railroad Commissioners and better the rates there for the whole Society, and not for any individual member.

I want to state right here and now that my experience with railroad men in the United States has been an experience that has brought me in touch with the finest set of men in the country! (Applause.) I had the honor to serve with a committee last summer which acted with the Western Transportation Committee, of Colorado Springs, to advocate certain propositions in the nursery transportation freight question. We found, gentlemen, that those men who formed the personnel of that railroad committee were among the finest men in the country; men who knew as little about the nursery business as any child in the country, too. We got a hearing with Mr. Decker. the chairman of that committee, and found him to be as fine a man as you could find anywhere, and a man ready to listen to our propositions. You will find them that way all the time. The difficulty is not that there is a set of thieves at the head of affairs among the railroad men, but that these railroad corporations are not individuals and are not run by individuals, but they are run by combinations of individuals, and it is impossible for the smartest man in the United States to take in all of the great business propositions of the United States. The consequence is, that they never get their rates to fit the commodity. What did we find in the railroad board? Just as soon as we got before that railroad committee with a fair proposition on the nursery commodities, these men were ready to meet us, and they did meet us. This is the spirit in which the resolution was offered. It is in the spirit of friendship to ourselves and to the railroads at the same time. We want nothing that is not equitable and right, and we believe that if given to them in the right and proper spirit, and shown that we are only asking what is fair and right, we will always be treated about right. If we are not served just

right the first time, by going again and again we will eventually get to the right place; but you will find these railroad men a fair lot of gentlemen and fine men to deal with at all times. My idea in having this committee was, not to go at the railroads in an antagonistic spirit, but in a friendly and businesslike way, and I think that should be the idea of every member of this Society. Do not put on your fighting clothes, but go with the emblem of peace.

The motion was unanimously adopted, and the president appointed A. L. Brooke, Frank W. Dixon and B. F. Smith as members of the committee; the secretary of the Society to be a member ex officio.

ELECTION OF DISTRICT TRUSTEES.

The following gentlemen were elected as trustees for their respective districts for ensuing two years:

First district, E. A. Dickinson, Meriden.
Third district, F. L. Kenoyer, Independence.
Fifth district, William Cutter, Junction City.
Seventh district, C. A Blackmore, Sharon.
Eighth district, Geo. A. Blair, Mulvane (one year)..

PRESIDENT HOLSINGER: We have with us to-day several visitors, and as we have time to spare we will call upon some of them. Let us hear from Mr. Thoburn, late secretary of agriculture of Oklahoma, first.

- J. B. Thoburn: Mr. President, I assure you it gives me very great pleasure to come before you this afternoon with a few words of greeting from the Oklahoma Horticultural Society, of which I am a member. In Oklahoma we have had, for years past, a horticultural society. For a number of years it was known as the agricultural and horticultural society, but it was the horticulturists who kept it up. We have a flourishing society now, and feel that we are progressing in a very satisfactory way. I am always glad to meet horticulturists. A horticulturist is always willing to help somebody else. I thank you.
- J. W. ROBISON: Mr. President, there is present with us to-day an old friend of mine from Illinois, under whose lectures I sat many years ago, before I came to Kansas, and for much of what I know about horticulture I am indebted to him. I should like to have him speak to us for a few moments. I refer to Prof. T. J. Burrill, of Illinois.

(Cries of "Burrill," "Burrill.")

PROFESSOR BURRILL: Gentlemen, as a pioneer member of the Illinois society, I bring you greetings. I am not a delegate this time from the Illinois society, but am like Patrick at the post-office, who called for a letter. The postmaster naturally enough asked his name, and Pat didn't quite like that. He disputed the matter for a little while, and finally told the postmaster, "Mike O'Brien." The postmaster says, "There is no letter here for Mike O'Brien." "Is there any way of getting in there through this hole?" said Patrick. "No," says the postmaster. "T is well for you there is not. I would tache you better manners than to be asking a gentle-

man his name; but you didn't get it after all; so I am even with you!" (Laughter.) So I think I am even with my friends, the delegates here. I am very glad, indeed, ladies and gentlemen of the Kansas State Horticultural Society, to meet with you to-day, but I will not detain you longer. I thank you. (Applause.)

S. N. Black, of Illinois, was called for, and spoke as follows: It is with great pleasure that I come here to meet you advanced horticulturists in Kansas. I love the subject of horticulture. While a member of the Illinois State Horticultural Society, I am not its pioneer member. We have in Quincy, Ill., a society known as the Mississippi Valley Apple-growers' Association, which makes apple growing a specialty. Its secretary and president asked me if I could not come here and learn something from the Jayhawkers of Kansas. You have a reputation for growing apples, and I think justly; and I hope that seasons and weather may favor you, and that all your trees may bear abundantly, and that peace, happiness and plenty of apples may grow. This is my wish from the Mississippi Valley Applegrowers' Association. I thank you. (Applause.)

Adjourned until 7:30 P. M.

Evening Session.

THE IDEAL OCCUPATION FOR A RETIRED LIFE.

By GEORGE WEST MAFFET, Lawrence.

In assigning to me this topic, the question arises as to whether a sentimental essay is wanted, or whether the error has been made of supposing that I lead a retired life. I have elected to write entirely within my own experience, in the hope of being helpful within the scope of this Society, in its mission of disseminating the actual experience of its members for the practical benefit of all fruit-growers. My life has always been intense, and, in its bearing upon horticulture, has always been the strenuous life.

My early inspiration came from a banker relative next my childhood home, and from another banker and his large family of boys across the street. These people made it a life fad to gather and propagate upon ample city grounds the very choicest of all fruits that could be had from foreign sources, or from trees in bearing; this in a large valley among the mountains of Pennsylvania. Did you ever hear of the White Oxheart cherry? It was my choice of half a dozen sweet cherries in black, deep red, and white. It was intensely sweet, almost a candied fruit. Of the plums, gages and prunes of European origin, and some of mammoth size, I had, at the age of fifteen, at least sixteen different varieties of my own grafting. Of a dozen kinds of grapes, my boyhood choice was the little Red Delaware grape; and when I came to Lawrence twelve years ago I set out six Delaware vines, but in this climate they never gave me a single grape. German prune here always sheds its unripe fruit, and a couple of sweet cherries here set a sparse crop, to later shed their fruit prematurely. European and most other plums in eastern Kansas rot and drop, but I have seen large European plums and gages-as large as hen's eggs-raised in perfection on the red lands of southern Kansas. The peaches there are superb; I had seven choice varieties at Anthony.

At times there is an element of the miraculous in nature. For instance: For several years I had noted a small colony of canker-worms upon a single tree in a corner of the orchard-no others were in the orchard and these damaged but a single square yard of foliage. With but these few as seed, came, the next year, so miraculous a host that every tree in the orchard was so completely covered with the working worms, that by jarring a limb and sweeping a stick around the webs, as they hung pendent, half a pint of the canker-worms could be gathered from the lower limbs of a single tree in a few passes of the stick. Then came a wearisome fight with Paris green, and the doubling and quadrupling of the dose, without any apparent effectthey seemed to eat through the poison heaped in their path and thrive upon One noon we came in with the spray wagon leaving them in countless millions in the orchard. While eating a neighbor orchardist came in and said his canker-worms were gone; were mine? We went into my orchard, and behold, a mystery! Not a single canker-worm to be seen on either the sprayed or unsprayed rows, where an hour and a half before they had been in numberless force. Whence came they and where gone? Evidently the hour had struck for them to go into the ground and they had dropped-how I would have liked to have been present when they let loose and dropped! The second year I was ready when they hatched with a home-made spray of arsenite of soda; they were all there; not a worm was missing on either sprayed or unsprayed rows. Continual showers kept washing off the spray and five and even seven times it was renewed, but dead worms were few to be seen. The third year the worms hatched out very unevenly and for several weeks there were both mature worms and newly hatching worms in all the trees. They did not do much damage, but the sprays left enough survivors to people the world; and yet the fourth year not a canker-worm hatched.

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And another lightning change: One spring the orchard was a mass of fully opened apple blossoms, when a fierce wind suddenly sprang up, and in two hours a white and pink carpet was on the ground and scarcely a blossom held its petals on the trees, and so soon as this all hope of a crop was gone.

And still another mystery: The cherries were full ripe; the pickers were in the trees and the fruit was being sorted and faced on the packing-table, with very little imperfect fruit being found; an errand called me to town, and a light thunder-storm intervened; the effect being to leave a hot, murky, damp atmosphere. When I returned in a couple of hours, about one-fourth of the fruit coming in had fully developed rot fungus upon it; what is more, the cherries already sorted had to be resorted. Now, whence came the spores of rot which so miraculously sprang into evidence?

And yet again: A visiting fruit-grower who had just inspected my pear orchard, remarked, "Maffet, why do you not cut out the blight in your pear orchard?" Now, it happened that the second day previously there had been but a few blackened leaves. When I went out to see the trees, a couple of hours after the above warning, the trees looked as if a fire had run over them—the blight spread down the branches and things looked bewitched. The pear orchard had been thrifty and greatly admired for its rapid growth and intense color up to the time it blossomed; then came the change. The next spring I replaced one-third of the trees; the second spring I had again to replace two-thirds of them; now but very few trees survive. They were in sixteen inches of black, waxy soil, on top of clay subsoil—too much wet.

And still further: The abnormally dry year of 1901, when excessive and continuous rains persisted until long after planting-time in the spring, and then it set dry and abormally hot until within a few days of August, town people sleeping upon their front porches or upon the ground in the dooryards. When the belated plows were at last started in the spring, the soil was like salve, and, when turned over, baked into sun-dried bricks that refused to crumble. Among many other crops, I planted navy-beans, and these lay unsprouted in the ground for three months—just think of it! And this was in the same soil that in ordinary years I have raised a crop of navy beans in sixty days without a drop of rain; and the beans were planted in dry dust at that.

And last to be related among some of my experiences upon a fruit-farm was one of my earliest, some ten years ago: Noting an apparent difference among the apples upon a Ben Davis apple tree I was stripping, I started in to see how many different appearing apples the one tree would afford. Seven varieties resulted in my sorting to appearance, and the most radical of them all had purple stripes upon it nearly an inch wide. And yet these same purple stripes came up in a discussion in the Missouri society as an evidence that a certain apple was not a Ben Davis. And how many people I have fooled by taking a Ben Davis that was well mellowed up in the early fall and on the yellow order and presenting it with others to some one who "had no use for the tasteless Ben Davis, but this was something greatly superior"; and yet, after all, it was only a mellow Ben Davis.

A suburban apple orchard, although it may not have been the source of original sin, can, at least, bring to the front some peculiar phases of human nature. To so very, very many people, "Thou shalt not steal" does not apply to the apple. How many passing vehicles will come to a stop while the occupants "cabbage just a few," or with a sack will deal generously with themselves of the windfalls. And regarding experiences, there was the neighbor who wanted a few down apples to cook for the table. He was told cordially to help himself, and the next we knew town vehicles were passing the house with our fruit in quantity they had purchased of said neighbor. Then there were the Indian school boys who asked for apples, and were told to go the orchard and take from the ground what they could carry, and the result was they stripped off their underwear, tied shut the arms and legs, and carried off nearly a bushel each. And how disappointing when the Indian girls were granted the same permission by the lady of the house, that they only filled their aprons.

One day while working with honey-bees and busily at work in veil and gloves, with an uncovered hive and the bees in full evidence, I was startled to be addressed; and in alarm glanced around to find a young lady only a few feet away; she said she and her mother were driving past the orchard and her mother would esteem it a great favor to be allowed to ramble among the trees and review the experiences of her childhood—they would harm nothing. I almost gasped in suspense; should I tell the young lady she was in danger from the bees and she would attempt to retreat in haste, she would be attacked and dangerously stung; if their horse standing in the road was wet with sweat, it was not safe from attack even where it stood; should they drive in and tie, the danger would be still greater; and should they drive down the orchard lane, it would bring them only a few yards away from the disturbed bees. So I stammered out that if she would take her

vehicle into the barn, she could then take the orchard ramble. She returned to her mother and I hope escaped all stings, but they must have come to the conclusion from my strange manner that the permission was too grudgingly given to be accepted and they drove away.

Twelve years' experience in sorting apples from a family orchard of seven acres, comprising twenty varieties, and the handling of other fruits and berries, has impressed upon me the belief that the best package is the one nearest air-tight; I would like to reject the ventilated berry crate and I want no slat bushel boxes, nor boxes with slat bottoms. I want wood next the fruit, to absorb the fruit juices, and then the package made air-tight. In sorting fruit there is an instinctive intuition passes through one's brain as each specimen is picked up, as to how long it will keep. The feel of it has something to do with it, but the shade of color still more. Some years all rules fail through excessive wet or excessive drought, both of which may cause apples to shed prematurely and to rot unexpectedly. This fall a pile of Den Davis apples in the barn, which I fully believed would keep well until Christmas, turned to a mass of rot in only ten days. Every apple kept its shape, but looked like a baked apple-the effect of the brown rot, which developed unexpecedly, owing to late rains. The fruit was apparently sound, but its quick deterioration caused havoc with both orchardists and contractors. Only a few years ago the same thing happened, and apples that were barreled sound had to be opened and resorted within two weeks.

Right here I wish to impress attention to the fact that cold storage and railroad refrigerator-car service have reached such perfection of delivery the past year or two that the city merchant is furnished a daily supply of fruit and vegetables from cold storage. This supply is so uniform and regular that the fruit-grower who has saved his crop for winter markets cannot crowd his product in except at severe concessions. We have had this experience with both onions and apples. This holding and redelivering back to points of origin gets another freight charge and more commission charge in between the grower and the user, and it behooves the growers to stand with back to back and insist and persist that their own profit must be conceded first of all. In the resistless crush of modern readjustment, all interests seem to be well cared for except those of the worker of the soil, and he alone seems content to toil without adequate return.

But modern development has had some compensations for the fruit-grower, and the telephone steps in to help. I saw a couple of Indian boys come out of the orchard with two-thirds of a bushel of apples. As the hogs had the range of the orchard and would stand with cocked ears waiting for the next apple to fall, so as to race for it, I knew the boys had picked the apples direct from the trees; so I stepped to the 'phone and called up the Indian school and prepared a reception committee to cut off the retreat of the boys. Another time the 'phone warned us that three of our chickens had been shot in the road by town boys, and to head them off; connection had been too slow to head them off, but a canvass of the neighbors up the line (by 'phone) obtained a full description of the vehicle; and had the boys come out that road again for many weeks they would have fared badly.

Now, under the biblical promise that if we sow we shall reap, we are entitled to a fair reward for industry and thrift well applied. Do we, as fruit-growers, reap an adequate return? How well I remember our first cash return of the fruit-farm; the hired man and myself, with a team and wagon,

spent two days gathering and marketing the Maiden Blush apples, and received a total return of four dolllars—that is a total of two dollars a day for two men and a team, and the apples thrown in gratis. It hurt my feelings, because I considered my own time worth the two dollars per day. Do you, kind friends, when figuring men's hours and wages, the horses' and your own time involved, find that the man and team would have brought in as much cash hauling rock or teaming on the city streets—saying nothing of a return for the fruit? Or do you claim that the return is for the fruit, and that the man and team do not count for anything, but are thrown in?

Suppose that apple crop you read about did sell for \$10,000. To be sure that amount is a fortune, and is for a single crop, but wait! Is there a profit or a loss, and what part of the money is it? Was it the every-other-year crop usually obtained, or was it the first real return in eight years? What was the labor bill for gathering? What did the barrels cost, and what the teaming bill? How did the grades run, and what the loss from rot? After all, is there not some mistake about the consideration being \$10,000? Was it not that the estimated crop was so many barrels and that the contract price was so much a barrel, delivered on the cars—a very different thing?

How well I remember the fruit-grower with the bonanza crop of thousands of dollars' worth of extra early peaches; how gaily he loaded his first car, only to find before he could slam the door shut that they had already rotted so badly that they were too far gone to be even shipped, and they were at once unloaded. The thousands of dollars' worth of fruit was there; but never did those dollars turn up in the bank account.

And yet again was the instance of the once president of this Society, who gathered his own scions from bearing trees that actually showed, while in fruit, marked superiority in fruit, great thrift of growth, and unprecedented quantity in yield; these were grafted and planted by the thousands, and the coming reward could be plainly seen in the distance when our friend, died; the rabbits, before noticed, decimated the young trees, and, when the farm was sold, the new owner announced that he would remove the remains of the young orchard, as he understood that apples did not pay, and he wished that the old trees were out of the way, too, because the land was too valuable to bring no adequate returns.

These two instances show some of the uncertainties of this occupation; and so the question returns, In this, our beloved occupation, do we get adequate returns? And what can we do by mutual help and mutual exchange of experience actually to seize and hold some of the ready cash that proves so very elusive in our's, more than kindred vocations? Every merchant and carrier and commission man and cold-storage man manages to secure a fine profit out of our fruit. Why not compel them, first of all, to yield an adequate return to the grower? If the lather (and plasterer) gets his six and seven dollars a day because his trade can be carried on but a part of the year, why cannot fruit prices take into consideration the fact that yearly crops are an impossibility—apples every other year (may be); peaches once only in three years. Then there is the time taken to establish plantations, and the various vagaries of climate that may prevent a crop, in the first place, and its successful securing and marketing, in the second place. every branch of human endeavor, it is conceded that ample reward is but just. Let us talk, and talk, and talk, and insist upon a profit until it is granted.

And now, having been permitted to get this far along without touching my subject, please allow me to close without referring to "The Ideal Occupation for Retired Life." If you wish to lead a retired life, don't touch fruit-growing, if you seek your peace of mind. If you wish to gloat over the development of a few choice specimens that only a few days more will round into full perfection, please remember that you may awake in the morning to find them gone; some one whose ideals were not so high as yours considered them fully ready, and acted accordingly. If you are successful, and raise a plenty and to spare, the passers-by will be so inconsiderate as to invade your retirement and offer to exchange their good, hard money for your perishable fruit. If your conscience should be supersensitive, how can you justify yourself in placing temptation before fellow human beings by raising choice fruit? The higher it hangs the greater the temptation—you know that; so refrain.

THE IDEAL FRONT YARD OF A COUNTRY HOME. By Dr. G. P. Lux, Topeka.

The art of ornamental gardening is undoubtedly backward in America as compared with England, and especially is this so in the West. There is a reason for this: our country is comparatively young. The first things that are sought after and provided for in a new country are the necessities of life; next the comforts; and thirdly, as the people prosper and wealth accumulates, pleasures and luxuries. The whole world around us is full of beauty. The woods, the streams, the vegetation and the flowers, the hills and the valleys, the sunrise and the sunset, the sky in fair weather and in stormy, all have priceless values outside of dollars and cents. It is often necessary to be taught to see and appreciate them. When once started in this line, the pleasure to be had is only limited by the capacity to enjoy.

You may ask, Does it pay in dollars and cents to beautify the home grounds? Let us see. There are many men in Shawnee county, and hundreds in Topeka, who, if asked what they would take for their favorite tree, would point to it with pride and say: "Why, I would n't cut that tree down for a hundred dollars." What did such a tree cost? Perhaps one dollar twenty years ago, for the tree, preparing the soil, and planting, and next to nothing in the years since. Just think of it, 500 per cent. annually for twenty years. Have you ever raised anything on the farm that has paid so well as that? Have you ever invested in oil or mining stock that even promised so well? To this add the dividends which you have received that cannot be measured with the dollar sign. The fascination with which you have watched it grow; the pleasure it has given your family and friends and even the passer-by; the welcome shade and the protection in storm. To all this add the amount it increases the value of your place, in case you should want to sell. If one tree has such value, think of the wealth to be gained by planting many trees, shrubs, flowers and vines surrounding your house. Many a man will expend several thousand dollars on his house and its furnishings, but will hesitate in spending twenty-five dollars on his yard. All the shrubs and flowers you find in his yard have been gotten by the good wife from some kind neighbors. This should not be. Did you ever stop to think that the house and beautiful inside furnishings depreciate in value because of being used from year to year, while a few dollars expended for trees, shrubs and hardy flowers increase in value each year? Their presence always makes a less expensive house look finer than a costlier one which presents nothing in the heat of summer or the storms of winter for the eye to rest upon but walls, harsh outlines, dry ground, or mud—the other extreme.

No better method can be devised for rendering farming a pleasant occupation for the young than beautifying the home surroundings and the early cultivation in the children of the faculty of enjoying nature. It has been said that "The hope of America is the homes of America." Whatever adorns one's home and ennobles his domestic life strengthens his love for his country and nurtures the better elements of his nature. To promote a love for trees, vines and flowers by cultivation and study develops in children a love for the beautiful in nature, in art, and still more in character. Awaken in children an interest in birds, insects, geology, etc. These things will early secure for them a source of enjoyment that is unknown elsewhere one which elevates the mind and fills it with noble aspirations. It keeps them out of bad company and makes them love their home. The outdoor air and exercise are especially conducive to the health of the mothers and daughters. A stroll in the vard and flower-garden quickly rests the body and mind, tired with the cares of the house. The smell of the newly turned soil, the budding vegetation in the early spring, and a scent of the freshly opened flowers and fragrant foliage is far better than our drug-store perfumes, which are ninety-nine per cent. alcohol, and therefore perhaps a little more intoxicating than some flowers. The home is the dwelling-place of immortals. It should be the most sacred spot on earth. The residence need not always be elaborate. There is much of cheer even in the lowly cottage. Your home should be like a beautiful picture and your grounds should be like a fitting frame for it. Don't be satisfied with putting a thousand-dollar picture in a ten-cent frame.

With the modern inventions and improvements, you can have on the farm almost all the conveniences about the house that your friends have in the city, and at even less expense. By means of a small gasoline-engine and pump and a compressed-air tank, you can have a system for water-supply for the lawn and garden in the summer and for continual use in the house, which will save the wife lots of hard work, and add to the comfort of the entire family.

Now, for the embellishments of the yard. By all means, fence it. The yard is no place for scratching chickens, rooting hogs, and sick and disabled machinery. Plant vines to cover the fences in places. Chinese and Japanese honeysuckle are among the best; also, *Clematis paniculata* and some of the climbing roses are good. These are among the most rapid growers, and will soon cover the coarsely woven wire fences that are mostly used today. If you have a stone wall on the north, so much the better; it will give protection in winter to tender plants and shrubbery and make a beautiful effect in summer, if covered with the Boston ivy.

THE WALKS.

The one leading from the public road to the house should be laid out so as to give the approaching visitor the best view, and, therefore, the best impression, of the most attractive sides of the house. The walks to the barn, well, poultry-house and any other buildings should be as direct as possible, unless the yard is a large one. In this case they may have long, graceful curves, with shrubs planted in the curves to prevent those who are in a hurry from taking a short cut. A good permanent walk may be made of six inches of crushed rock with a covering of two inches of gravel. The top should be about level with the surrounding surface of the yard. This will give you a clean, dry walk even in wet weather.

TREES.

Some of our trees produce beautiful flowers, others magnificently colored foliage; some take the spiral form; others have well-rounded tops; some grow with a spreading or graceful habit; some with thick, compact leaves, and others with light and airy foliage. Plant tall-growing trees on the outskirts of the yard and in the rear for a background. Study the nature of the trees and do not crowd them. Allow ample room for their perfect development, for it is then only that they show their greatest beauty. Be sure not to plant large-growing trees too close to the house. You need plenty of fresh air and sunshine in the house, for comfort and health. The roof and woodwork of the house will also last much longer if it is not too densely shaded. Go to the windows and porches and note in which direction the best view of the surrounding country, or anything of special interest, can be had. Arrange the trees, and allow for future growth, so that these views will not be obstructed. Also, make use of trees and shrubs to hide or cover unsightly or unpleasant views of buildings or anything objectionable on your own grounds or those of your next-door neighbor. In many cases they can be arranged to serve as a windbreak, which will save fuel in the winter and make the house cooler in summer. Get your trees from the local nurseries or from native timber. Select if possible those that have been growing in soil and location similar to that in which you wish to transplant them. If you choose trees that have been growing in rich, damp soil near a stream, and plant them on a high, dry hill in poor soil, it will take them a long time to get over the shock and become accustomed to the change. Give them as good or a little better than they have had and they will soon repay you for your extra trouble.

Now, plant your evergreens and taller-growing shrubs on the sides and in the rear of the house, using the trees as a background. Plant in groups, the lower-growing varieties in the front, so they will not be hidden by the larger growers. Do not plant either trees or shrubs in straight lines. It looks too formal. Go to nature for advice; she is the best teacher. Take a stroll along the edge of the timber and study the arrangement. You may plant some low-growing shrubs next to the foundation of the house, especially in the corners. In front of the shrubs plant hardy flowers and bulbs, like tulips, narcissi, hyacinths, lilies, etc. Now arrange for beds of flowers and old-fashioned hardy perennials here and there on either side of the walks, and especially along the irregular edges of the groups of shrubbery. These flowers of our grandmothers are rapidly coming into favor again. When once well established they thrive, multiply and increase in beauty each year. There are many nurseries in the East that make a specialty of this kind of plants, shrubs, and bulbs. Some varieties that do well in the East will not thrive here. I have done a lot of experimenting, and find that most anything can be grown here if you study its nature in regard to soil, sun, or shade. There is quite a fascination in successfully growing something that everybody else fails with. Get all the trees, plants, shrubs, etc., that you can from your local nurseries. Home-grown stock is much more valuable than that which has been imported, or shipped a long distance, and grown in different kind of soil. Another advantage in getting material from your locality is that you can get it fresh from the ground, while stuff that you get from the foreign nurseries frequently has been dug and exposed for weeks before it reaches you. Another item is the heavy express charges where the plants come from a distance. It frequently amounts to more than the cost of the plants. Nevertheless, we are obliged to buy from the East, because our local nurseries handle fruit-trees exclusively, or carry but a few varieties of ornamentals, while the Eastern nurseries carry thousands, and make a specialty of this line. Beware of the tree pedler who takes your order by means of a catalogue with gaily colored pictures and fascinating names, and then delivers you something entirely different. There was a fellow in Topeka last year who sold "Carolina poplars" the size of your thumb at two dollars each. He went down to the Kansas river, where young cottonwoods were growing by the thousands, pulled up all he needed, and filled his orders for "Carolina poplars." Moral: Send to some good, reliable nursery. Then you will be sure of getting what you order. In a good nursery you will always find some reliable men who will be glad to give you advice regarding arrangement, selection, and culture. That is their business, and they are anxious for you to be pleased and to succeed, in order that they may get your future orders.

I will return to the front yard, as I have almost forgotten one of the most important features, and that is the blue-grass lawn. By all means, secure as large a space in the front yard as possible. See that it is kept clean and in good condition, and regularly cut with the lawn-mower. Plant all the shrubs and flowers around the borders, but do not plant anything in the open space but grass. There is nothing like it to give breadth and expanse and an air of distinction to the whole yard. Before planting anything in your yard be sure to prepare and fertilize the soil well. Plant carefully and take good care of things after planting and you will be well repaid.

LIFE-HISTORIES OF SOME PARASITIC FUNGI.

By PROF. T. J. BURRILL, University of Illinois.

ABSTRACT.

The parasitic fungi which infest cultivated plants, and which sometimes very greatly injure the crops of the field, the garden, and the fruit plantation, are themselves real plants, though of a low order. They exist, each after its kind, as do other plants and animals; they germinate, grow, reproduce generation after generation, are subject to favorable or unfavorable conditions, are dependent upon certain food supplies, require time to complete their life-cycles, keep their own characteristics, live their own lives. They are, indeed, of small size; they cannot be studied or sometimes seen without a microscope; but each species does have its own life-history and process of development, and these can be followed just as well, when we are fixed for it and will take the trouble, as can those of the higher and larger living things.

A few words here will not be amiss concerning certain terms which must be used in what follows, and concerning general characters of the plants and their parts. They all have what is called a "mycelium," composed of slender threads which constitute the vegetative part of the fungi, and which answers for the roots, stems and branches of higher plants. There are neither leaves nor flowers. Spores, which are always microscopic bodies, take the place of seeds.

More commonly the parasites with which we are to deal have at least two kinds of spores, which are not only differently produced but which are usually adapted to the reproduction of the plant under different circumstances or conditions. One kind, commonly known as "conidia," are usually formed in great numbers during the course of growth of the fungus and serve the purpose of immediate and rapid reproduction: the other kind are produced at or after the cessation of growth of the parasite, and are generally for the perpetuation of the fungus the next year, after survival of a winter or other period of dormancy. The conidia are formed by or borne on the free end of a fertile thread sometimes similar to and sometimes quite different from the ordinary vegetative threads. They may be roughly represented by fruit on the branches of an apple tree, freely exposed from the beginning to the air. The other kind are formed within closed cases, usually elongate and cylindrical, with thin, transparent walls, and may be represented by apples (fruit) in an exhibition jar. The transparent cases are called "asci," from a word which signifies bottle, and the spores are known as "ascospores." The asci are commonly produced many together (each having usually eight spores) in certain fruit-forms characteristic of the species. The two terms, conidia and ascospores, should be kept in mind—the first the temporary or summer spores; the second the permanent or winter spores.

The damage caused by fungous parasites to plants and crops is prodigiously large when considered in the aggregate. Not unfrequently whole crops otherwise very promising are ruined, and it is rare that any crop is produced without some injury by these minute foes. For the United States, from 100 million to 200 million dollars loss annually is not too great an estimate. The sum of \$3,000,000 has often been lost in one year in Illinois from the smut of oats alone, a loss which is easily preventable. Fully one-half of this last sum was lost in four counties of Illinois in 1902 by the destruction on the trees of apples after the latter were half or more grown. So with other cases. There is surely need for all the knowledge we can have to carry on intelligent and successful warfare against these insidious pests.

We now turn to the life-histories—to an account of the seasonal development of these particular parasites, presented for the purpose of showing how warfare can be best waged against them. Little is to be said concerning the appearance or structural characteristics; neither shall modes of procedure in spraying, etc., be entered upon; but when and where to make the attack, if there is a best time, must be clearly set forth..

BLIGHT OF PEAR AND APPLE TREES (Bacillus amylovorus).

This disease is caused by a specific bacterium, one of the so-called disease germs, similar to that causing hog-cholera, or the one to which typhoid fever is due. The malady is often called fire-blight of the pear, and twig-blight of the apple tree, since in the former it affects the larger as well as the smaller branches, and the leaves, which adhere to the limbs, suddenly

become discolored, and in case of the apple tree usually only one or two years' growth of the twigs are involved. It is the same organism in both cases, and may be readily transferred from one tree to the other by artificial inoculation. It also makes primary attacks upon the trunks of both trees, more often the pear, resulting in diseased patches of greater or less extent, sometimes attributed to sun-scald or frost—recently designated cankers.

This organism has the simplest possible course of life. No spores are produced. The minute single cells merely divide so that each part becomes like the parent, and after separation each may again divide in the same way. This is the entire story. The bacillus seems to live over winter in some of the old diseased bark, ready to renew its dividing process the succeeding summer. It is distributed by insects, especially by bees passing from flower to flower, in the nectar of which the organism rapidly grows and multiplies. Blight of the limbs often starts from the flowers, but the organism also starts in the tender tips of growing shoots and in young leaves. This is the way twig-blight originates. The older bark must be punctured by something else before it gains introduction.

Unfortunately, no preventive has been found and no remedy is known except cutting away the diseased parts. If this is promptly and efficiently done the amount of the destruction can be very much reduced, and even actual extermination of the pest in favorable situations can be accomplished. The numerous suggestions concerning medication of the trees or soil, washes, etc., may safely be said to have no dependable basis for use, though too stimulating conditions to growth should be avoided.

PEACH LEAF-CURL (Exoascus deformans).

The leaf-curl of the peach is too well known by every one who has to do with these trees. The fungus lives over winter in the mycelium or vegetative state in the outer bark and in the buds of living twigs. As soon as the buds begin to swell in the spring the parasite starts its growth also and infests from the beginning the young leaves. By the time these are or would have been full grown the fungus fruits by the production of great numbers of asci (transparent cases) each filled with spores, on the naked surfaces of the diseased leaves. This gives the thin, powdery coating observed on these distorted leaves. In this case there is only one kind of spore, the ascospore, and these are for the immediate dissemination and reproduction of the parasite, while the mycelium is permanent through the rest of the year.

Attack is best made upon the latter by the application of Bordeaux mixture to the leafless trees before the buds are open in early springtime. One application, if well made, accomplishes the purpose. The trees are not killed by the fungus, but are so injured that the crop is seriously affected. Proper spraying prevents this.

BLACK KNOT OF PLUM AND CHERRY TREES (Plowrightia morbosa).

The black, crusty masses on the branches of these trees, especially evident when the leaves are off, are begun by the germination of spores produced in summer (conidia) or winter (ascospores), and penetration of the germ filaments into the living bark of these trees. When a branch is once infected new knots may be produced from the older ones by the spread of the mycelium in the tissues. Ascospores are developed during the winter

in the substance of old incrustations and conidia are formed in immense numbers on the surface of new ones. The disease is spread by the dissemination and growth of either or both kinds of spores.

Careful pruning away the knots while the trees are defoliated, followed by any further cutting found necessary during the summer, is the best, and is a successful remedy.

CEDAR RUST (Gymnosporium macropus).

This fungus has the curious habit of growing alternately upon orchard and crab-apple trees on the one hand, and upon Red cedars on the other. Trees of the latter kind often bear upon the young twigs peculiar balls, which, during April or May, suddenly become covered with a great mass of yellow, gelatinous substance shooting out from the hard center in irregular, somewhat cylindrical, flabby outgrowths. They are sometimes mistaken for the fruit of the tree, and may be as conspicuous at this time as mature, red fruits are on a well-loaded apple tree. But these jelly-like sprangles are really masses of spores (teleutospores they are called in this case), from mycelium that has lived over winter in less conspicuous, hard, marble-like balls on the twigs.

Later in the season, from July onward, certain apple trees in the neighborhood show, perhaps even at a distance, a diseased condition of the foliage. On inspection, it is observed that there are on the leaves definite spots, some half-inch in diameter, which are somewhat thickened, and upon the upper surface are yellow, mostly with a red center, and on the lower leaf surface, also yellow, but beset with tufts of small brownish outgrowths. These, under a lens, are seen to be clusters of erect tubes, fringed at the outer end and filled with many yellow spores (representing conidia). The growths on the two trees are utterly unlike, but they are alternating states of the same fungus. The spores from the apple leaves do not infect again any part of this tree, but do produce the form described on the cedar. So, too, of the cedar-borne spores, and the alternation is necessary to the life of the parasite. Apple orchards can, therefore, be freed from the fungus by destroying all cedar trees within the near neighborhood, or, when the latter are few in number, the balls can be picked off during the fall or winter. In this case, great care should be taken to secure them all. Remember. they are at this time small, hard bodies, and have a smooth surface, slightly tinged brownish purple.

APPLE-SCAB (Fusiciladium [or Venturia] dendriticum).

Taking one year with another, all over our territory, this is undoubtedly the most destructive of the parasitic diseases which affect the apple tree and fruit. Its appearance on the latter is well known; that on leaves less so. While the injury to the apples is bad enough, really more loss is caused by the attack upon the foliage. There are several causes operating at one time or another for out-of-season leaf fall, but this fungus frequently defoliates, sometimes completely, the orchard-trees in midsummer, or soon after, perhaps when the tree has hanging on its branches a good load of fruit. Of course, this never matures properly and is also usually too knotty to be of value.

The fungus produced its ascospores during the winter (from which it is placed in the genus *Venturia*) within the tissues of the fallen leaves. From these they escape about the time of the opening of the buds, and later the

following spring. In this way, and apparently only in this way, the first infection of the season comes about. Soon, however, the conidia (summer spores) are borne on the spotted fruit and infested leaves from the new growth of the fungus, and this is kept up throughout the season, if a start has once been made and conditions favor.

An excellent method of control would be to gather and burn all of the old leaves, if this were practicable, or if they could be covered two or more inches deep in the soil in autumn no harm could come from them. These processes are commonly impracticable, and reliance must be placed on spraying with Bordeaux mixture, once just before the buds open, once just as the petals have mostly fallen, and at least once again about ten days subsequently. Sometimes further applications are profitable, but the two earliest must be practiced if the others are not, and this whether the trees are to bear fruit or not.

BROWN ROT (Monilia [or Sclerotinia] fructigena).

A very common, wide-spread, and destructive disease—worse upon stone-fruits, but also affecting apples, especially earlier varieties, pears, etc. The diseased fruits become soft and are soon thickly covered with a dusty coating of pale brown spores. These conidia are produced in enormous numbers from each infected fruit and are easily carried by the wind or are washed down by rain. Falling on the uninjured surface of healthy peaches, plums, etc., no effect follows so long as moisture is absent, but in droplets of dew or rain germination and penetration take place. The fungus develops rapidly under favorable conditions and another great crop of spores soon results.

Sometimes serious damage is done to the flowers, which are during worst weather reduced to a mass of soft corruption in a day. Even young twigs are destroyed, and often the diseased fruits adhere firmly to the tree, become shrunken, dry, and hard, and in this state the mycelium preserves its vitality until the following season or even for two years. Whenever again moistened sufficiently during the summer, fresh crops of spores are produced. When these infected fruits are buried in the ground there is formed, during the winter and spring, a second kind of the fungus fruit, viz., ascospores, within cup-shaped bodies raised upon a stalk above the surface of the soil. From these, too, infection of the developing fruit on the tree may occur.

Certain varieties are more liable to this disease, and this fact should be considered in the selection. Otherwise, control seems only possible by the liberal use of Bordeaux mixture, properly diluted for the stone-fruits. Applications must be continued well through the fruiting season, and especially during periods of moist weather. There is no short cut to success in this case, but persistent spraying is reliably effective. Much, too, can be done in the way of prevention by carefully gathering the old, diseased fruit from the trees and from under them and destroying it. Gathering (by some hand-picking device) the fruits during the growing season, as they show the rot, has also proved practicable in the case of peaches, and profitable in saving the crop. Even when the best methods are followed, however, this fungus, during warm, moist weather, is a difficult one to subdue, and large losses are apparently inevitable.

BLACK ROT (Sphæropsis malorem).

This affects apple fruits, and to some extent other fruits and plants, and it develops on the trunk, limbs and twigs of apple trees. It has been called (as seen on the tree) New York apple-tree canker. On growing apples the rot usually starts from the eye or from a wound made by an insect, and gradually spreads from this as a center, always showing a clear boundaryline between the diseased and healthy area. At length numerous pin-pointlike pustules are formed, and from these may sometimes be seen issuing little white, tendril-like threads or irregular masses, which under the microscope prove to be comparatively large spores (conidia). When conditions favor, these germinate at once by putting forth one or more slender tubes which may develop into a mycelium of a new infection. Or, if they do not soon germinate they gradually change from white to black, and become divided by a medium cross-partition forming two cells, either or both of which may germinate as just described. In this latter condition these spores may rest for a considerable time (months) without loss of vitality. They have been found, still capable of growing, free in the soil under apple trees.

The fungus develops in the same way in the living or dead bark (or even on dead wood) of apple, pear and many other trees and plants. The infected spots on a limb finally show as scars or wounds having an area of the smallest dimensions to several inches of dead bark surrounded by a rim of healing tissue. These dead spots are called cankers. Later on there is often produced in the substance of dead bark ascospores which resemble very much the conidia and appear to have the same endurance and functions. Since the conidia germinate in summer or as readily live over winter in the infected bark, the ascospores do not seem to add anything to the possibilities of the fungus.

The fungus more often lives as a saprophyte than a parasite, i. e., on dead instead of living plant tissues. Even on apple fruit a previous wound is commonly necessary for its start, and this seems to be further true for the bark of the tree. Indeed, the fungus is a common inhabitant of the dead bark of the tree, whatever the first cause of the trouble. When the latter has been blight the Sphæropsis is afterward very often found developing in the dead tissues. The fruit on a certain tree of a given variety is found year after year to be more liable to the infection, and this means that the tree is otherwise off in vitality. The same is true of the limb cankers. Hence, to prevent the disease, take care of devitalizing conditions. Prune and cultivate or otherwise stimulate growth. With this, help is directly derived from Bordeaux mixture used as a spray. This, applied as for applescab in the early part of the season, seems to have a controlling influence, but does not alone act as a complete remedy.

BITTER ROT (Glæssporium fructigenum, or Glomerella rufomaculans).

Every one who has once seen this disease on apples is likely to be able to identify it again. It is not properly a "rot" in the usual sense of this word. The infected fruit is never soft; there is really no decay. The cells of the fruit do collapse and the surface of the spot becomes in consequence depressed, but the tissues involved are dry, firm, and tough. The affected spot is sharply defined and is conspicuous from the black color. In more or less concentric lines, little pustules break through the black epi-

dermis, and from each of these, as the disease develops, there is sent out little masses of pinkish spores (conidia), embedded in a viscid or adhesive substance. Usually, but not always, the affected part of the fruit has a distinctly bitter taste; hence the name. The term "ripe rot," which has been sometimes applied, is ill chosen, for green fruit may be infected in July as easily as at any later time, though more commonly the conspicuous outbreaks of the disease are later. No previous puncture is needed for the penetration of the germ tube through the skin of a fruit, but moisture is required.

The fungus lives over winter as mycelium in the old, shriveled fruit hanging upon the tree, and in limb cankers, which are similar in appearance to those of the black-rot fungus, and which seem to start in a similar way, mostly in wounds or bruises, due to other agencies. If, however, the infected apples fall to the ground in the orchard, the enclosed fungus seems always to die before the time for spore production the following spring—at least, this has been the case with hundreds of specimens examined. In a room heated for occupancy both the conidia and the mycelium preserve vitality through the winter. Ordinarily the former are short-lived, as they germinate whenever they are moistened, and then the resultant growth is easily killed. They cannot be found in the soil under badly infected trees beyond a few days after the spotted fruit has been removed. Ascospores are occasionally produced both in old affected fruits and in old limb cankers, but, again, these serve no further purpose than do the conidia in preserving or disseminating the fungus.

Two methods of combating this disease have been successful, especially when combined. The old, infected fruit and the limb cankers may be removed from the trees when the latter are defoliated and as these are found during the summer, and a good coat of Bordeaux mixture used as a spray can be lodged on the sound fruit as a protection. In one way the cause of the infection is removed; in the other way it is rendered inoperative. It seems to be best to commence the spraying just before an outbreak may be anticipated (usually in July) and to follow the first application just as soon as feasible by another. The fruit cannot be securely enough coated by one application, for, if the spray is continued with a view to accomplish this, the material drips off and is lost. The finer the spray the better the result. Very often, when an outbreak has recently occurred, the spots on the fruit form a good guide to the location of a spore-producing canker above. In such a case both canker and affected fruit should be removed.

This disease is exceedingly destructive when an orchard is badly infected, as it is liable rapidly to become when the malady is once introduced, but it can be controlled, and it is worth while to try.

Adjourned until nine o'clock A. M.

THIRD DAY-Morning Session.

Prayer.

THURSDAY, December 28, 1905.

AN IDEAL APPLE ORCHARD AND HOW TO GROW IT.

By B. F. COOMBS, Parker, Kan.

I will commence at the starting-point. In the first place, it is necessary to have good, healthy two-year-old trees from the nursery. The next important thing is to plant in clean ground, that which has all wild grasses or wild nature of any kind subdued. Then I take a lister and go as deeply as possible, twice in a row, laid off from north to south, two rods apart; then, with a single-horse plow, one rod apart east and west; then set my trees at the intersection of the crosses, about two inches deeper than they were in the nursery.

I am careful to see that good dirt or loam is under the tree at the bottom of the hole. After the orchard is planted, I take a single-horse plow and fill the listed furrow. A good, clean corn-field is an ideal condition to plant in. I farm the orchard in corn for six years, and try to farm my tree rows as I farm the corn. Each season I am careful to get the borers out of these young trees, but if I keep my trees well cultivated, thereby guaranteeing a thrifty growth, the sap will flow sufficiently to drown the borers. After the first six years, my plan is to seed to clover, sowing a bushel of seed to six or seven acres. This clover I turn under every three or four years, according to the stand, and reseed it, being careful not to plow deeply close to the trees, to avoid cutting the small roots.

SPRAYING.

Whether an apple crop is in sight or not, I pay no attention to the Bordeaux-mixture receipt; but, contrary to so much I have seen written about burning the leaves, etc., I always use all the Paris green and sulfate of copper I feel able to buy; that is, I have these ingredients by the ton; but, of course, use sufficient lime to prevent burning the foliage.

I like my trees headed low, so that the hot midsummer sun cannot strike the trunk of the tree and cause sun-scald; if trees become scorched with the sun, it is then an endless task to keep out the flat-headed borer. I use two compressed-air spray machines and one steam sprayer. I now have my men schooled so they are apt in taking hold of all parts of the work. I think my plan very simple, merely following the requirements of nature; and if apple growers will follow this simple plan and actually do it (not promise to do it and then neglect it), I believe this state will be more successful as an apple grower.

One other requisite is fertilizers of all and every class. I haul manure by the thousands of loads and put it on in sufficient quantities—say a good two-horse load around about twenty trees, about a foot from the trees and four to six inches deep for the next foot encircling the tree. The point is to keep the tree in a vigorous, growing condition. By doing so it can withstand many of the pests; and by thorough spraying to get away with the codling-moth, curculio, leaf-roller, canker-worm, etc., the orchard is able to mature a good crop and good quality of fruit; where, on the other hand, if the orchard is in orchard-grass, prairie sod, bluestem, blue-grass, weeds,

sumac, brush, and other abominations, and has not been well sprayed, the trees are not strong and vigorous, and cannot mature good wood and fruit.

I failed to mention in the fore part of this paper that I try to wash the body of my trees at least once every two years. I use a composition of soft soap, lime, pine tar, and carbolic acid; it makes the bark smooth, kills insects, and is a preventive of the ravages of rabbits and mice.

My orchards are now from one to fifteen years old. I try to keep up 2000 acres. So far, they have paid for the land and the expense; the latter is very heavy; but I do not spare expense to do what I think necessary for the good of the orchard.

PACKING.

I use both boxes and barrels. This season I packed 30,000 boxes, and about 13,000 barrels. I am now getting at our Kansas City house \$2.50 a box for Jonathan, \$1.75 to \$2 for Grimes' Golden, Huntsman, Gano, Winesap, York Imperial, etc., and \$1.50 for Ben Davis; in barrels from \$4 to \$6, according to quality and variety. A few cars are now going to the Eastern and Northern cities.

BREEDING NORTHERN FRUITS.

By PROF. N. E. HANSEN, Agricultural College, Brookings, S. Dak.

For a large part of Kansas and regions of similar rainfall, from Texas to Manitoba, we especially need plants that are drought-resistant. The mistake has been made hitherto that fruits, trees, grains, grasses and forage crops brought over by the early settlers from the mild regions of western Europe, a region of abundant rainfall, are those best adapted for semiarid conditions of soil and climate. We now realize that we should take advantage of the work of ages of selection in the dry regions of the old world, and import anything of promise. Secretary Wilson, of the United States Department of Agriculture, has sent men to the ends of the earth to secure plants adapted to the varied conditions of our country. That the philosophical basis underlying this work is sound is acknowledged by all who have investigated the subject. This does not mean that we should neglect our native species. On the contrary, we should explore our own wilds as much as the wilds of Europe, Asia, Africa, South America, Australia, and the islands of the sea. Then, when the ends of the earth are brought together, by making wise use of the new light in heredity revealed to us by Mendel and De Vries, we can obtain new plants combining the desirable characteristics of these various races.

As the first agricultural explorer sent out by the department, I made a trip in 1897-'98 of nearly ten months to Russia, Transcaucasia, Turkestan, western China, and Siberia. Over five car-loads of seeds and plants were brought back, including the Turkestan alfalfa, which has proven more resistant to cold and drought than the ordinary form of alfalfa, which was brought over by the Spaniards from northern Africa. The trip involved an overland journey in Asia of 1300 miles in a wagon and 700 in a sleigh, the latter in the endeavor to reach the Siberian railway after snow came to check further work in exploration.

Let me discuss briefly some of the leading principles underlying the breeding of fruits. To explain my interest in fruit-breeding, I will say that during the past ten years I have been working along this line at the South

Dakota Experiment Station, coming to that state from Iowa, where eight years were spent with Prof. J. L. Budd, of the Iowa Agricultural College, and four years in commercial nursery work. Two years ago I had over a quarter of a million fruit seedlings on hand; the number is now larger, but I have not had time to count up lately. Many thousands of inferior seedlings are destroyed each year by fire. The material on hand includes native fruits from the Dakotas, Manitoba, Assiniboia, and other regions of the prairie Northwest, the best cultivated and native species from other parts of the United States, and from many countries of the old world. be readily seen that the possible number of combinations is endless. I will not weary you at this time with a full account of the work under way. My view-point was broadened by a horticultural study trip in the fall and summer of 1894 to Germany, England, France, Sweden, Denmark, Belgium, Russia, and Austria, followed by the exploring trip just mentioned. The past season I had the great pleasure of visiting Luther Burbank, of California, who is the acknowledged leader of us all in the field of inventive horticulture. I use the word "inventive" advisedly, because plant-breeding corresponds to the work of invention in the domain of the mechanical industries.

DE CANDOLLE'S LAW.

De Candolle writes, in the "Origin of Cultivated Planta": "The northern limits of wild species . . . have not changed within historic times, although the seeds are carried frequently and continually to the north of each limit. Periods of more than 4000 or 5000 years, or changements of form and duration, are needed apparently to produce a modification in a plant which will allow it to support a greater degree of cold." This shows that the constitutional ability of a plant to endure a greater degree of cold cannot be changed by selection alone. That can be imparted by crossing with hardier species, hardiness being one of the characteristics, I believe, that can be transmitted by the law of Mendel. In a general way, it may be stated, that by crossing wild plants with cultivated ones a new individual can be produced, combining the hardiness of the wild with the size and quality of fruit of the tame.

However, we know that nature has done a great deal of work in adapting plants to varied conditions of heat and cold. We know, by costly experience, that the box-elder from the far South and East winter-kills at the North, while the local form of the box-elder, which appears to be identical with it in all respects, is perfectly hardy. The Red cedar from the South is tender in northern Iowa, while the local Red cedar is hardy. Very many instances might be given from the experience of Northern nurserymen in America and government foresters in Russia. All this shows that such a work of adaptation by selection is possible for nature working through ages, but is not a practicable piece of business for man to undertake. However, the members of this Society will not be especially interested in the question of hardiness. You will be more interested in the question of drought-resistance. And yet your horticultural history shows that Jack Frost has a way of dipping far south into your orchards, as witnessed by the cold wave of February, 1899, when the loss of millions of apple-root grafts and young apple trees over a wide area of the West indicated the need of hardier roots for your apples. In Russia this trouble has been solved by using the Siberian crab, Pyrus baccata and P. prunifolia, as stocks, both of them capable of

enduring greater cold than the standard apple (*Pyrus malus*). Conversely, I believe it to be a mistake to attempt to adapt plants from far North south of their natural limits. Professor Munson, of Texas, has found that our Northern *americana* plums winter-kill in Texas, as they start too early in the warm spells of winter, which do not wake up the native species of plum. Russian foresters have found the Siberian larch tender in southern Russia, pecause they start too early; that is, they wake up easier than the Southern form of the larch, and are caught by late frosts.

MENDEL'S LAW.

This has already been ably presented before your Society; so I will refer only briefly to the possibilities of the law. Mendel discovered that two distinct species or varieties of plants could be crossed, and that the characteristics will be rearranged and a new individual produced. The characteristics appear to be transmitted as a whole instead of being split up into intermediate forms, and that the rearranging of the characteristics appears to follow the law of chance. But in the case of our fruits we only need one individual, as we can propagate it by division later. It could be fixed from seed by carrying out the law, but this would hardly be necessary, except where it is necessary to propagate plants from seeds. This means that if we make crosses enough we will be apt to get an individual having any desirable combination of characteristics.

QUETELET'S LAW.

This law holds that any possible variation or sport will occur by the law of chance only in so many hundred or thousand times. Hence, if we only have seedlings enough we will get the desired variation. This means that the larger the number of seedlings the quicker the results will appear.

DE VRIES' THEORY OF MUTATION.

Doctor De Vries, of Holland, after working for twenty years with over 100 species of plants, very recently startled the world of science by adding something to Darwin's theory of evolution. Instead of new forms originating by very gradual, imperceptible changes, the changes occur by steps or leaps. This is evolution by saltation-by hop, skip, and jump, so to speak. I have illustrated it by saying we must now consider evolution to be a kangaroo and not a snail. The changes that were formerly thought to necessitate thousands of years for completion may need only a few generations. In fact, a new species of plant or animal may appear suddenly, fullfledged, like Minerva from the head of Jove. This wonderful conception may only be alluded to here, but it has put a new light upon much of our experimental work, and we owe a great deal to Doctor DeVries for his persistence and genius in working out this new law of heredity. The modern plantbreeder rides in an automobile on the highway of evolution, and for the North, at least, the four laws just mentioned may be considered as four of the most important cogs in the machinery, if not the four main wheels.

APPLES.

The cultivated apple is a native of the temperate regions of Europe and Asia, and has been with us since the dawn of history. During that time it has been greatly improved in size of fruit, but it appears mainly to have been by the process of long-continued selection under cultivation. It is only in

recent years that much attention has been paid to directing the work of improvement. Some people maintain that we should depend upon chance for all our improvement with the apple and other fruits, but this strikes me as being the lazy man's way of looking at it.

That our apples are not perfect may be seen from the low quality of some of our standard market winter apples. What a libel on the fair name of the apple some of them are as far as table quality is concerned! Some of our fruit-men say we should pay attention only to large size, high color. and long winter-keeping capacity. That quality counts for little with the general public may be true; it is nevertheless a fact that many consumers are beginning to discriminate in the market against poor quality of apples. I do not in the least wish to condemn any of the varieties which are popular in this locality for market. They have brought prosperity to large sections of the Southwest. It is also true that some of the choicest apples are relatively unproductive, or are poor in nursery or weak in constitution. This brings us to the main proposition, that, instead of being content with the apples we have at present, we should proceed to invent the varieties that will meet our present demands better. It is possible, by applying some of the laws just mentioned, to invent new varieties combining more of the desired characteristics than any now known. Hence, without condemning any, I wish to insist we should stir ourselves more than we have in the past to fill this unoccupied field.

In my home town a few weeks ago some barrels of fancy Esopus Spitzenburg apples from New York state were sold at eight dollars per barrel, while Ben Davis from the South sold at four dollars or less. There is no reason why we should not have an invented variety combining the desirable characteristics of both these varieties. If a multitude of inferior seedlings arise, do not be discouraged, as they are the shavings in the workshop of the inventor.

Not only do we need better quality in our market fruits, but also greater powers of resistance to the various fungous and insect diseases. Some varieties are practically free from scab. Other varieties are nearly free from blight. The Northern Spy apple root was found to be resistant to the wooly aphis in Australia, and so on through the list. Here is food for thought and material for experiment. Over a large region of the West and Southwest, where midsummer conditions often obtain during late fall, when winter apples are receiving the finishing touches on the tree, it may be that we will not be able to supply winter apples without cold storage. The present race of cultivated apples demands a cool fall in order to keep long during the winter. Apple buyers know that the winter apples from Michigan and New York keep better than those from the Southern states of the same varieties. Hence, it may be necessary to introduce a little blood of the wild American crab of the Mississippi valley, which, in spite of hot autumn weather, are true winter keepers. As for seedlessness in apples, there is no more reason why we should not have a seedless apple than a seedless orange, and the latter is already an accomplished fact. Nature has pointed the way by giving us seedless apples for at least 2000 years past. None of them, up to date, however, have proven to be of any market value, being too poor in quality of fruit or having other undesirable characteristics.

PLUMS AND CHERRIES.

For the prairie regions of the West some of the native species are eminently worthy of our consideration. At the North the native Prunus americana plum reigns supreme, after plums from many parts of the world have been tried and found wanting. In a horticultural exploration tour along the Missouri river a year ago, near the north line of the state I found a tree bearing plums one and three-eighths inches in diameter, and this is right in the wilds; under propagation the fruit will be considerably larger. The americana plums, as represented by the best named varieties, are of excellent table quality. For Kansas the Sand plum appears especially promising, and I am glad to know that this work has been begun at your Experiment Station, at Manhattan. In South Dakota I find this species lacks in hardiness. often freezing back severely in winter. But for its native home it will no doubt be the ancestor of many varieties with large fruit of choice quality. I trust that you will not stop in this line of work until a half-million seedlings have been fruited under the most favorable conditions during a series of years, carried through ten generations of plums if necessary, before you are ready to say that the work of improvement is finished.

The Western Sand cherry (Prunus besseyi), native from Manitoba to Kansas, is a bush which delights in dry, poor soil and droughty seasons. Even as found wild on the Western ranges, the fruit is all good enough for ordinary use, while here and there a plant is encountered with fruit nearly free from astringency. It is a welcome addition to our list of small fruits. I have fruited many thousand seedlings of the Dakota form of the species, and in a plantation of over 25,000 seedlings of the third generation under cultivation the past season, seedlings were found bearing fruit an inch in diameter, and of good quality for eating out of hand. I have over 70,000 plants on hand at the present time. A lot of the fourth-generation plants I trust will show fruit this coming season. Some interesting hybrids of the Western Sand cherry with other species, such as Japanese plums and a Chinese apricot, are also coming on, and I am awaiting their fruiting with much interest. It may be that something good may yet come out of the Dwarf Rocky Mountain cherry, which is the name under which the Colorado form of this species was first introduced as unselected seedlings to commerce.

In passing, I may note that the Western Sand cherry is a good dwarf stock for the peach, the trees fruiting freely when three feet in height. Such trees may be useful in the amateur's garden, where space is limited, or for growing in tubs for fruit-breeding work, as I am doing at Brookings.

That our native choke-cherries are susceptible to improvement may be gathered from the fact that last year, in exploring the wilds along the Missouri river in South Dakota, near the North Dakota line, I found bushes bearing fruit very nearly free from astringency, and much larger than the ordinary.

In the work of developing plums and cherries, the question as to whether pure-bred seedlings will in the end be better than hybrids with Japanese or European plums remains to be determined. In all such work, it must be remembered that the best results may not come from the first cross. Burbank has originated choice plums containing the blood of as high as six species.

WORK WITH THE PEAR.

Our pear belt has extended southward by an accident which occurred near Philadelphia which gave us the Kieffer pear. As you know, it is a hybrid of the Chinese Sand pear with some choice European pear. It has extended the pear belt far south, but has not given us high quality. Evidently we must use a little more of the European blood in order to combine heat resistance with high quality.

STRAWBERRIES.

I am not sure that we have the best stock of the strawberry for this region. Our strawberries, as you know, are mainly of South American ancestry, with possibly a little blood of the wild Massachusetts and other Eastern strawberries. The South American strawberry gave us large size but poor quality. Our wild berries are unexcelled in quality. Why not see what can be done with the local form of the strawberry from the dryest part of the West? In Dakota I find trouble with hardiness. After testing many varieties of standard strawberries, I discarded them in favor of crosses of the wild and tame. From 8000 cross-bred seedlings some 225 were selected and given further field trial. I have now over three acres of these seedlings, from which a few will be selected for dissemination. Two varieties were sent out last spring for preliminary trial. These strawberries were never mulched; so have endured forty degrees below zero with the ground bare.

RASPBERRIES.

The history of the raspberry in the United States has been one of vicissitudes. The raspberries of Europe failed in the Eastern states. The wild berries of the Eastern states were next taken up and developed, and, under cultivation, soon gave us improved varieties. These were crosses of part native and part European parentage, giving us our present list of raspberries. But why should we be content with the work that is done in the Eastern states? It stands to reason that our Western wild type of the raspberry will be better adapted to our conditions. In South Dakota I have fruited thousands of raspberry seedlings, part of them wild seedlings under cultivation from various parts of the prairie Northwest, and part crosses of the wild and tame. I now have varieties of good size and quality which have endured forty-one degrees below zero without protection. For the Southwest, where raspberries are not satisfactory, owing to the inability to stand the winter sun, I would suggest getting species of the raspberry from other countries of similar climatic conditions.

NEW NATIVE FRUITS.

It is time we recognize that although the staple standard fruits will always maintain their supremacy in the markets, there is room for new types of fruit. Our far Northern markets should not be given up wholly during a considerable portion of the year to the banana and the orange. Why should not the native persimmon be improved by selection from thousands of seedlings and also by crossing with the immense luscious seedless persimmons from Japan and China? This would make productive many an acre of rough brush land now lying waste. Our chestnuts could be improved by selection and by crossing with the large varieties from Japan, Spain, and other countries where more attention has been paid to the chestnut. The

papaw is a neglected fruit with great possibilities. Some have called it the Northern banana, and its sweet, custard-like, tender flesh is acceptable to many people. Under cultivation it would doubtless improve considerably. All these are but a few out of many that might be named as promising material for the fruit-breeder.

I have seen certain apples top-grafted with scions from the same tree; one would scab very freely and the other would resist scab. What is the use of using the squirt-gun on apples when we can get a variety that will resist scab? It is just as sure that we can get resistant varieties of apples as can be. I do not mean that we can invent a flawless type, but I do mean that within certain limits we can get a resistant apple.

PROF. E. A. POPENOE: It seems to me there is a point lost in this, that although one apple may be scabless and the other scabby, it is the scabby one we want, not because it is scabby, but because of the other characteristics of the apple. What we want is the best apple, whether it is scabby or not, and it is our business, it seems to me, to save the best apple and to overcome the scab.

PROFESSOB HANSEN: We have scab-resisting apples, but they are not desirable as fruit, I admit. By crossing the scab-resisting variety with the choice variety, we can get a scab-resistant variety with the good qualities of the other. That is the point I wish to make.

PROFESSOR POPENOE: Are we doing that?

PROFESSOR HANSEN: I said that you are sitting like "bumps on a log" and are not doing it.

PHILLIP Lux: I want to substantiate the remarks you are making with a reference to the Missouri Pippin, which is the worst apple for scab. Out of about thirty trees I have, there were five that had no scab. I examined them the next spring, and the five had good, sound apples, while the twenty-five others had scab. The five trees bear mostly No. 1 Missouri Pippins every year. I have an orchard in which part of the Missouri Pippins have never made a cent for me, and another setting two years later from a diferent nursery bear sound but small apples; so there seems to be something in the breeding.

PROFESSOR HANSEN: That brings up another interesting point—bud variation. Some of our apples have been under propagation as far back as the Roman empire. They are the same now, I think, as they were at that time, but I do n't know. Sometimes apples will vary under propagation.

A. H. GRIESA: We have in Kansas a seedling pear superior to the Kieffer in quality, ripening about the same time and about as large, but it is a seedling of the Kieffer. There is a Duchess (Angouleme) growing near it, and it looks to me as though it might be a Duchess and Kieffer cross, but the quality is superior to either. I tried to hydridize or cross-breed raspberries, using the Louden for one and the Cardinal for the other. I succeeded in reducing the number of plants that produced.

REPORT OF COMMITTEE ON EXHIBITS.

Your committee find on exhibition 265 plates of fruit, embracing the following varieties: Fulton, Lawver, Janet, McAfee, Shockley, White Pippin, Minkler, Grimes' Golden, Winesap, Smith's Cider, York Imperial, Dominie, Rome Beauty, Gano, Red Winter Pearmain, White Winter Pearmain, Ben Davis, Huntsman, Vandevere, Romanite, Willow Twig, Talman Sweet, Jonathan, Missouri Pippin, Snow, Rambo, Haas, Limber Twig and Tulpehocken apples; Kieffer pear; three varieties of crab-apples; two varieties of persimmons; two varieties of potatoes; turnips.

By E. G. Hoover, Wichita, Sedgwick county, thirteen plates of apples: Winesap, Rome Beauty, Red Winter Pearmain, York Imperial, Missouri Pippin, Huntsman, Limber Twig, Jonathan, Grimes' Golden, Snow, McAfee, Ben Davis. Premium, \$4.

By I. B. Wheeler, Oskaloosa, one plate: Minkler.

By Geo. A. Blair, Mulvane, Sumner county, Kansas, nineteen plates: Ben Davis, Missouri Pippin, Rome Beauty, York Imperial, Janet, Little Romanite, Rambo, Winesap, White Pippin, Gano, Willow Twig, Haas, Shockley: Kieffer pear. Premium, \$6.

By.J. L. Williams, Wyandotte county, twenty-seven plates of apples: Fulton, Winesap, White Winter Pearmain, Jonathan, Lawver, Smith's Cider, Ben Davis, Missouri Pippin, Janet, York Imperial, Hunstman, McAfee, Dominie, Vandevere. Premium, \$5.

By F. P. Spencer, Randolph, Iowa, two plates: Winesap. Premium, \$1. By W. B. Eames, Ottawa county, six plates: Winesap, Missouri Pippin, Ben Davis, Grimes' Golden, Jonathan. Premium, \$1.50.

By Arkansas Valley Horticultural Society, twenty-eight plates: Ben Davis, Missouri Pippin, Rome Beauty, York Imperial, Janet, Little Romanite, Rambo, Winesap, White Pippin, Gano, Willow Twig; Kieffer pears; crabs; persimmons; turnips; Early Rose potatoes. Premium, \$6.

By Sedgwick County 'Horticultural Society, thirty plates: Ben Davis, Rome Beauty, Missouri Pippin, Winesap, Snow, Red Winter Pearmain, York Imperial, Grimes' Golden, Little Romanite, Janet, Huntsman, McAfee; Kieffer pears; French crabs; five bottles of wine from Sedgwick county grapes. Premium, \$6.

By Wm. Cutter, Junction City: Munson's Hybrid persimmons.

By A. H. Griesa, Lawrence: Paragon chestnuts, native Sweet chestnuts; Japan walnut (two-year, imported), Japan walnut (Lawrence, 1905); pecans, native. Premium, \$6.

■ By John Cousins, Eskridge, six plates: Grimes' Golden, Winesap, Willow Twig, Ben Davis, Rome Beauty, Janet. Premium, \$1.50.

By Chas. E. Hall, Hutchinson, one box, twenty-one plates: Stayman, Winesap. Premium, \$2.

By C. A. Blackmore, Sharon, nineteen plates: Gano, Ben Davis, Missouri Pippin, Talman Sweet, Janet, Winesap. Premium, \$6.

By F. E. Wickham, Wichita, fourteen plates: Winesap, Lawver, Huntsman, Ben Davis, Janet, Missouri Pippin, Premium, \$4.

By I. H. Diehl, Wichita, two plates: White Winter Pearmain, Winesap. Premium, \$1.

By Mrs. W. F. Scrimsher, Silver Lake, five plates: Winesap, Rome Beauty, Missouri Pippin, Huntsman. Premium, \$1.

By W. A. C. Moore, Shawnee county, six plates: Winesap, Tulpehocken, Ben Davis, Janet, Lansingburg, Missouri Pippin. Premium, \$1.

Entered for display only: Black Ben Davis, Senator, Stayman, Winesap, Delicious and Champion apples, which were awarded "special merit."

G. L. Holsinger, J. A. Perkins, F. W. Dixon, Committee.

EXHIBITS AT TWENTY-FIRST SEMIANNUAL MEETING, AT WICHITA, JUNE, 1905.

The Committee on Exhibits begs leave to report as follows: Several varieties of fruits and flowers were shown, though not in large quantities.

Among other fruits, the following were exhibited:

By F. W. Dixon, Holton, crate of Gandy strawberries; by A. W. Sickner, currants and huckleberries, Rathbun blackberries; by G. F. Kailer, currants and cherries; by Frank Yaw, cherries; by Mrs. Geo. A. Blair, flowers; by E. G. Hoover, apples; by Stark Bros., Louisiana, Mo., and Black Ben Davis apples; by E. H. Cooley, strawberries and plums; by J. Mossman, half crate of Gandy strawberries; by Mrs. Wm. Litson, Wichita, sweet peas.

The room was nicely decorated with fruits and premium fruits by the local committee,

G. L. HOLSINGER.

E. P. DIEHL,

Committee.

OBITUARY RESOLUTIONS.

WHEREAS, It is meet and right that we, as an association, record our expressions of sorrow and regret at the loss by death since our last meeting of four of our useful members, namely: S. H. Downs, of Topeka; J. H. Whetstone, of Ottawa; A. M. Colman, of Shawnee county, and Guilford Dudley, of Topeka: therefore, be it

Resolved by the Kansas State Horticultural Society, That in the death of these, our associates and fellow workers, this Society has suffered a wonderful loss in its membership; therefore,

Resolved, That we extend the hearty sympathy of the Kansas State Horticultural Society to the relations and friends of the four deceased fellow workers who have gone to their long home.

Resolved further, That these resolutions be spread upon the records of this Society.

S. M. Crow.
J. W. Robison.

Twenty-first semiannual meeting, Wichita Kan., June, 1905.

We bow in humble submission to the divine will of the Ruler of Nations, as manifested in calling from our midst Prof. R. C. Kedzie, Prof. J. C. Hicks, Prof. A. J. Lintner, L. W. Leach, W. E. Campbell, and Abner Allen, all of whom were earnest, enthusiastic helpers in horticulture.

F. WELLHOUSE. S. S. DICKINSON. E. P. DIEHL.

Thirty-ninth annual meeting, Topeka, Kan., December, 1905.

FINAL RESOLUTIONS, 1905.

To the Kansas State Horticultural Society: The Committee on Final Resolutions would respectfully report that the attention of your committee has been called to many matters of importance to the horticultural interests of the state, and in the opinion of your committee the Society at large, and more especially its officers, should keep these interests to us of paramount importance before the legislature, that means may be provided through which information brought out by study and experiment, where approved by this Society, may be more readily disseminated to horticultural workers of the state, and to this end we recommend the adoption of the following resolution:

Resolved, That the legislature of the state of Kansas be requested to provide funds for the more frequent publication of the reports of the Kansas State Horticultural Society, so that such reports may be placed in the hands of those interested at the earliest possible day.

Respectfully submitted.

JOHN N. MACOMB, WM. CUTTER, E. J. HOLMAN, Committee.

The president appointed J. L. Williams and Secretary Barnes as delegates to the Missouri State Society.

QUESTION BOX.

Q. Shall we continue to plant pear trees, after so many losses by blight?

MAJOR HOLSINGER: Mr. Beckley's treatment is on the theory that the disease is of the top and not the roots, and he has evidences that are well established that he has the finest pear prospect that there is in the state. Mr. Eames assured me that he tried it last season with fine results—that he had covered all his pear trees, with a single exception, with salt brine, as directed by Mr. Beckley, and all those trees were living except the one tree which he omitted, and it died from blight. I just gave you this as Mr. Eames told it to me. Perhaps we will learn something next year along this line of pear-blight. I don't believe I would give up the pear business yet.

Q. Do the fruit-growers of Kansas place the same valuation on their fruit-trees when being interviewed by the assessor that they do when claiming damages from railroads?

FRED. WELLHOUSE: This question has come up several times and we have had some experience in that line, and I think perhaps you all want to know what it is. We have had a good many trees burned by the railroads. To begin with, the valuation for taxation is not fixed by ourselves. We are often asked how many trees we have, and we don't know. We never count our trees. We know the number of acres, and they assess the acreage, but they do not put it, I am glad to say, as high as we do when we ask our damages from the railroads. If they did, we would have a whole lot more taxes to pay. The railroads have treated us very fairly, I must say, in regard to our damages. We had some trees burned when they were quite

young, only a couple of years planted, and they allowed us a dollar apiece for them. Last year the Union Pacific burned over about forty acres for us, and they paid us \$2500. I estimated that there were 400 trees [ten years planted that were damaged badly, and 100 that were killed (and 500 others damaged one dollar each, or \$500, which was rejected). The railroads, I must say, although they did not pay us what we asked, have treated us fairly. Five dollars apiece is what we asked all around, and they deducted \$500 from our figures. The assessors have always treated us fairly, too. When the assessor comes around, I claim that we planted our trees just the same as a man would put in his alfalfa, or his corn, or wheat, or anything else, and that the wheat man and the alfalfa man gets paid right away every year, while we plant our trees and then we have to wait five or six or eight years before we get anything, and that they should not assess our property any higher than they did the man that grows wheat or corn or alfalfa. They have always put us a little higher than they did the grounds that were not in trees, but not enough to increase taxes a great deal. The forty acres that were burned were planted in 1894 and were burned over in the spring of 1905. We estimated there were 500 trees killed or badly injured, · for which they allowed us five dollars apiece.

- J. W. Robison: The assessors, under the assessment law, are governed by certain regulations, and one of these regulations is that all township assessors shall meet previous to beginning their work and agree on a basis upon which they will assess each line. There is no rule for assessing apple trees at so much per tree, but only at so much per acre—whatever they may agree is proper. They generally classify the lands, and hold one kind of land at one price, and other kinds of land at other, varying prices. They do not ask you how many trees you have nor how good they are. They do not ask the cattleman how good his two-year-old steers are; it is, "How many have you?" They may be worth \$500 apiece; they may be worth less than \$8 or \$10 apiece. I know I have had horses assessed in bunches that way, where one that wouldn't bring twenty dollars, or a twentieth part of what another in the same bunch would bring, would be assessed in the same class and at the same figure as the other and more valuable one; and so it is with orchards. Orchards are assessed as acreage property, and not "per tree."
- E. B. Cowgill: On this matter of assessment of orchards, I think Judge Wellhouse's position is entirely correct. I have a farm on which there is some wheat growing. When the assessor comes around in the spring he won't assess that wheat. This is a crop that you have in prospect. I have a wheat crop in prospect, and the assessor does not take that into consideration at all. I think the position is a very fair one.
 - Q. What experience has been had in Kansas with the Logan berry?
- J. W. ROBISON: The Logan berry is a cross between the raspberry and the dewberry, with much of the habit of the dewberry. I got some and planted them last spring, and also distributed a few plants, and all I can say is that they are growing very nicely. I have both the black and the red. I had an opportunity to examine a number of acres of the Logan berry in California last fall; they bear there about five or six months in the year, if watered. I gathered in October, in a garden patch in Santa Cruz, all the berries we wanted to eat. We had Logan berries on the table a greater portion of the time we were there. The quality is very good, equal to almost

any of the dewberries that we grow. They have more of the flavor and appearance of the dewberry than of the raspberry. Mr. Burbank has several hundred kinds of these crosses, but he is only putting on the market the kinds that he thinks are worth growing. He is doing a great work there. I think Mr. Carnegie has never put a dollar of his money to as good use as he has in assisting in the propagating of these plants by Mr. Burbank. He has made Burbank an annual donation to carry on that work. I think our nation ought to make an appropriation to aid in carrying on that work, so that they might have the benefit of his long years of experience in doing this work. I hope this will be done in the near future.

JUDGE WELLHOUSE: You stated Mr. Carnegie had given Burbank an appropriation for this work; do you know more about that?

J. W. Robison: I was informed in California that Mr. Carnegie has given him \$10,000 a year for ten years. But Mr. Carnegie is not the only one who has assisted. Mr. Burbank is a poor man. He has spent his earnings in carrying on these experiments. He has a large force of men there, and a number of glass houses and all facilities for carrying on the work, and every dollar he gets he puts right into the business of carrying on this work. He is working purely and solely for love of the work.

I wish to say further that I believe the Logan berry can be grown with profit in this country. It is a question of whether it may not, in this latitude, need to be covered. I have covered a portion of my plants and a portion I have left uncovered, and in another year I shall know better, if we get enough cold weather to test them thoroughly.

- G. L. HOLSINGER: I have been informed by a gentleman from Illinois, a Mr. Riehl, that he has had the Logan berry quite a while, and that he does not believe it has any place commercially in this country, but that as a novelty, for one who wishes to grow novelties, it is all right to have a few of them. Mr. Riehl says that the color is not good and commercially there is nothing in its favor. I know it is a poor plant to handle. In that way I know it is unsatisfactory, as it is a very tender plant, making it hard to handle.
- W. A. HARSHBARGER: There is a mistake about this Logan berry originating with Mr. Burbank. A certain Judge Logan originated that berry, and Mr. Burbank helped to distribute it, as he told me himself last summer.
- E. A. GRIESA: I had the Logan berry a few years ago and tried to grow it, and a number of Lawrence friends tried it also, but there was n't a berry two years after they were planted. They all played out and were worthless and not profitable to grow. This was our experience.

Society took a recess to 1:30 P. M.

Afternoon Session.

THURSDAY, December 28, 1905.

PRESIDENT HOLSINGER: We will devote a few minutes to general discussion by the members. Has any one any questions they want to ask and have answered?

A MEMBER: I would like to inquire if anybody knows anything about the facts with reference to the May cherry. Is it not the same as the Early Richmond?

PROFESSOR VAN HOUTEN: In attending the meetings in several states I find that the nomenclature of cherries is probably more under dispute than that of any other fruit. One man will relate his experience with a certain variety, and another man will tell an entirely different experience with same variety, and yet they are located so near together and on soil so nearly alike that the only reasonable explanation is that they have varieties under the wrong name. The May cherry does not mean anything to the average man except an early cherry. It may be either one of half a dozen different varieties. Unless they can get something more specific than this word "May," we are as much at sea as if they merely said it was an early cherry. It may be the Early Richmond or either one of half a dozen other kinds.

PRESIDENT HOLSINGER: I believe that we have no root upon which the Early Richmond will give the same results that it will give upon its own root. I have an orchard of 500 trees now coming into bearing, all Early Richmonds upon their own roots. The cherry has been a pretty serious proposition with us down our way. The later sorts, like the English Morello and that type, have entirely "played out" with us. We have quite an orchard of cherries. With us the two cherries that have given the greatest satisfaction are the Early Richmond (on its own roots) and the Montmorency.

F. L. KENOYER: In regard to getting them on their own roots, of course the nurseryman don't take much interest, but I find on my own land in Montgomery county that the Early Richmond lasts only a few years unless it is on its own roots, and where I can't get trees that are sprouts from the Early Richmond trees, I get nursery trees grafted as low down as I can and set them as deeply as I can, so they will strike off a root or two.

A MEMBER: I am glad you made that statement. I had a few Early Richmonds and I have a great many sprouts coming out, and I hesitated, not knowing whether to plant them or not.

J. J. ALEXANDER: I find the cherry is different under different circumstances and in different soils in the same field. I have the Early Richmond at the head of the list, and I have the Dyehouse, which is a little earlier than Richmond. I have these on land that slopes, and twenty rods from there you would not know it was the same variety at all. The Dyehouse has not proven a success. It is a small cherry, not quite so tart as Richmond. We have tried many varieties of cherries in the West, and have concluded to keep the varieties down to three: Early Richmond, Montmorency, and English Morello.

RELATION OF EXPERIMENT STATIONS TO SOME ECONOMIC PHASES OF HORTICULTURE.

By S. A. BEACH, Ames, Iowa.

In its primary sense, the word "horticulture" means garden culture. Hortus is the Latin word for garden; it signifies an enclosed yard or selected area where special protection and care may be given to the plants which are grown therein. The Latin word agri, on the other hand, signifies the farm land, the broad, open field where corn crops are grown, or where domestic animals are pastured. From it comes our word "agriculture."

Horticulture, which was born in the garden, has grown in the course of ages, and particularly in these later days, so that its activities are no longer wholly bounded by the garden fence. The demand for garden products has led to a constant enlargement of the horticulturist's field of operations. In some cases modern orchards comprise hundreds and even thousands of acres each. Certain districts or localities are now given over almost wholly to the growing of some particular fruit crop, till we have come to recognize them, in common parlance, as orange districts, strawberry districts, peach belts, grape belts, or fruit belts, as the case may be. So, too, the growing of truck crops tends to become specially developed in favorable districts. Orchard crops and truck crops in modern times are not only shipped by the car-load, but even by the train-load, and often at express speed. Commercial horticulture is coming to be recognized as an industry of considerable economic importance.

The census of 1900 reports on the farms of the United States as classified according to the principal source of income from the farm. Where the income from any particular source equaled or exceeded forty per cent. of the total income, that source determined the classification of the farm. Thus, in case forty per cent. of the income was received from vegetables, it was called a vegetable farm. The horticultural farms were listed under the four sources of income, vegetables, fruits, flowers and plants, nursery products. These farms had a total acreage of 16,514,705 acres, valued at \$1,058,464,079, an average per acre of \$64.10, as shown in the following table:

FARMS CLASSIFIED ACCORDING TO PRINCIPAL SOURCES OF INCOME.

CLASS.	Acres.	Value of all farm property		
All farms	841,201,546	\$20,514,001,838	\$24 39	
Vegetables Fruits Flowers and plants Nursery products	42,662	\$546,921,965 439,933,714 52,462,419 19,145,981	\$53 85 71 54 1,229 72 115 49	
Total for horticulture		\$1,058,464,079	\$64 10	

The acreage for all farms is fifty-one times as great as the acreage of horticultural farms, while the value of all farm property is only nineteen times as great as the value of horticultural farm property.

Secretary Wilson, in his report of the Department of Agriculture for 1905, states that the department has just completed an investigation of the changes in the values per acre of medium farms since the census of 1900. Farms are classified in this report according to their principal sources of income, conforming substantially to the census classification for 1900. Fruitfarms show an increase in value of 27.9 per cent. and vegetable farms 26.7 per cent. The highest increases in dollars per acre are, for vegetable-farms, \$11.10; sugar-farms, \$12.34; and fruit-farms, \$15.71.

VALUE OF FRUIT CROP, 1900.

The reported values of fruit crops in the census of 1900 are, approximately, as follows:

Orchard fruits	\$83,750,000
Grapes	14,091,000
Small fruits	25,030,000
Subtropical fruits	8,550,000
Nuts	1,950,000
Miscellaneous	2,678
Total	\$133,373,678

The number of orchard-trees reported by the census enumerators increased from about 193,500,000 in 1890 to 367,200,000 in 1900. The increase in the number of apple trees alone during the same decade was more than 80,000,000.

COMMERCIAL ORCHARDING.

In colonial times the commercial orchards were of comparatively little importance. In this country the beginning of the foreign trade in fruits probably dates back as early as the beginning of the eighteenth century, but there are no records of shipment until 1741, when it is stated that apples were exported from New England to the West Indies in considerable abundance. The first record which we have of the shipment of apples across the Atlantic was that of Newtown Pippins, of the crop of 1758, sent to Benjamin Franklin, in London. Statistics on the subject are lacking until 1821, when the total export of fruit contained in the treasury statement consisted of 68,443 bushels of apples, valued at \$39,966. As transportation facilities gradually improved by the opening of canals and railways, farmers in numerous interior localities found that they could send their fruit to other than local markets and receive profitable returns. Accordingly commercial orcharding began to attract attention, especially in those regions which were found to be naturally favorable to the production of good fruit. A notable increase in the planting of commercial orchards occurred in the decade from 1850 to 1860 in certain portions of the Eastern states. Later commercial orcharding in the Middle West began to assume considerable importance, and it has continued to increase up to the present time. Apple orchards which were planted in regions where that fruit had not been hitherto grown were at first comparatively free from injurious insects and fungous diseases, but gradually these troubles became relatively more and more important, until at times they threatened the stability of the industry. In fact, in some of the best apple-growing regions of the country, orchardists became so discouraged at the outlook that in the decade from 1880 to 1890 they began to cut down their commercial orchards. After spraying as a

means for combating insects and diseases was introduced in orchard practice, and it became demonstrated that by this means some of the most destructive enemies of the apple might be profitably kept under control, the business of growing apples was put upon a more stable basis than ever before.

Notable improvements in the methods of orchard management in matters of tillage and cover crops then came into vogue among the most progressive orchardists. Facilities for holding apples, both in common and cold storage, were also greatly increased. The export trade developed more extensively, giving steadier markets for the better grades of fresh fruits, and also the business of evaporating apples assumed considerable importance. Statistics show that the apples in storage about December 1 of each year increased from approximately 800,000 barrels in 1898 to nearly 3,000,000 barrels in 1902. The annual export of apples in 1893 was 408,000 barrels, valued at \$1,098,000, while that of 1903 was 1,656,000 barrels, valued at \$4,382,000. The export of dried apples in 1893 was 7,967,000 pounds, valued at \$482,000, while that of 1903 was 39,646,000 pounds, valued at \$2,379,000.

The remarkable development of the industry of fruit- and vegetablegrowing in this country which has been seen during the last quarter-century has been accompanied by a corresponding development of allied industries, particularly those concerned with the storing of fruits and vegetables, both with and without artificial refrigeration, the evaporation of fruits, the canning of fruits and vegetables, the manufacture of pickles, jellies, preserves, marmalades, fruit juices, fruit syrups, vinegar, wine, etc., and the transportation and marketing of the products of all of these industries.

THE CANNING INDUSTRY.

The canning industry is an evolution of the last forty years. About 1840 experiments in corn canning began near Portland, Me., but years passed before the business began to be established even on a small scale. California made a pack of hermetically sealed fruits in tin cans in 1861. The Maryland pack of all kinds of canned goods was not more than 8000 cases in 1865. In 1899 Maryland packed 2,793,522 cases of tomatoes alone.

Thirty years ago canned goods were a luxury, relatively expensive, and used only in emergencies on shipboard or at remote places where other food was unobtainable. To-day their use is universal among the poor as well as the rich. The value of vegetables and fruits put up in cans in 1880 was approximately \$17,600,000; in 1890, \$29,860,000; and in 1900, \$56,670,000. The value of pickles, preserves and sauces made in factories increased from approximately \$2,400,000 in 1880 to \$21,500,000 in \$1900. The total for the two industries in 1900 was \$78,175,359.

FLOWERS, PLANTS, AND NURSERY PRODUCTS.

Floriculture as a commercial enterprise in the United States has chiefly developed within the last fifty years. It is mostly confined to the growing of flowers and plants in greenhouses. The total output of florists' establishments in the United States, at wholesale rates, was reported in 1900 as \$18,422,522.

The development of large commercial nurseries in this country for the most part began with the era of commercial orchard planting in the period from 1850 to 1870. At that time the large nurseries were mostly confined

to the East. Now they are found in all parts of the country. The total number of such establishments reported in 1900 was 2029, and the total value of the nursery products was about \$10,100,000.

This survey of the field of pomology, floriculture, truck-gardening, and the allied manufacturing and commercial interests, although hasty and incomplete, will suffice to show that in American horticulture we find a group of really great industries. Not only are they great, but they are growing greater every year, and are destined to occupy proportionately larger fields of activity and usefulness as the years go by. The constant increase of this country in population and wealth, and the accelerated growth of its foreign trade in horticultural products, is significant of a very large development of American horticultural industries.

These industries are already contributing materially to the wealth, well-being and progress of the nation; they are ministering to the necessities, the comforts, the refinements and the luxuries of life; they are furnishing employment to many thousands of people; they sustain important relations to other industries; they are indeed an important factor in our civilization.

The establishment, maintenance and progress of these industries obviously rest upon economic laws and principles. That part of the science of economics which deals with these particular laws and principles constitutes the field of economics of horticulture just as that which treats of the principles and laws of the production, distribution and consumption of agricultural commodities constitutes the field of the economics of agriculture.

THE EXPERIMENT STATION AN ECONOMIC FACTOR.

In these fields of economics there has appeared in modern times the agricultural experiment station, which, although it is a new factor, must already be recognized as potent now and tremendously significant for the future progress of these industries.

The first American experiment station was not established till 1875. It was located in Connecticut. It was supported in part by a meager appropriation from the state and in part by the generosity of the well-known agricultural editor, Orange Judd.

The germ thus planted grew vigorously in American soil. Other states soon followed the example of Connecticut in establishing state experiment stations, and in 1887 Congress passed an act authorizing the establishment of experiment stations in every state and territory in the Union. Agricultural experiment stations are now in operation in all of the states and territories and in Alaska, Hawaii, and Porto Rico. Excluding substations, the total number of stations in the United States is sixty, of which number fifty-five are receiving appropriations provided for by acts of Congress. In 1903 the total income of the stations maintained under the act of 1887 was \$1,427,000, of which \$720,000 came from the national government and the remainder from state governments and other sources.

The stations employed, in 1903, 757 persons, of whom 160 were chemists, 79 horticulturists, 56 botanists, 4 plant pathologists, 23 mycologists and bacteriologists, and 50 entomologists. During that year the stations published 371 annual reports and bulletins, which were sent to over 500,000 addresses on regular mailing-lists.

These stations were originally established and are now maintained for the declared purpose of carrying on experiments and researches in scientific agriculture, and for the dissemination of scientific information of value to agricultural interests. It is understood, of course, that the word "agriculture" is here used in the broad sense which includes horticulture.

Are we horticulturists ready to stand for this idea of the value of science in agriculture? Does the mention of scientific agriculture arouse the distrust and prejudice that it once did? I believe that the word "science" sounds much less formidable to the average farmer or fruit-grower than it did a generation ago. The reason why it has in some cases appeared formidable to them is probably that they have taken it to stand for a kind of knowledge which seemed so much beyond them that they could have little or nothing in common with it. Perhaps they lost sight of the fact that no one scientist is able to grasp all science; that the scientific achievements of man are infinitely greater than the capacity of the mind of any one man to apprehend. Perhaps, too, they failed to recognize that every capable farmer or fruit-grower is somewhat of a scientist, whether he realizes it or not.

What is science? Is it not knowledge that has been classified so as to illuminate or explain some law or principle in nature? Knowledge of one fact alone is not scientific knowledge, although scientific knowledge must of necessity include a correct knowledge of facts. Neither is the knowledge of numerous facts scientific, so long as each appears to stand alone with no evident relation to other facts. But when the mind examines facts and, after discovering how they are related one to the other, fits them together in orderly arrangement, then its knowledge of them becomes scientific. Must not the practical farmer or fruit-grower exercise just this kind of knowledge in order to succeed? Is he not, therefore, somewhat of a scientist?

When the knowledge of the facts is faulty, both the science and the practice based upon such knowledge are faulty. For example, I know of a fruit-grower who noticed that ants were all the while after the plant-lice which were infesting the foliage of his fruit-trees. He supposed that the ants were enemies of the plant-lice, and accordingly he hunted ant-hills, dug them up with their inhabitants and scattered them through his orchards to help rid the trees of the lice. Some time afterwards he found out that the lice are the dairy cows of the ants, and that instead of being at enmity with them the ants follow up the lice to milk them for honeydew. His science was faulty, and consequently he wasted his efforts in combating the lice. So, all through agricultural and horticultural practice, there is need of more scientific knowledge.

Progress is continually being hindered because of a lack of correct knowledge of the facts. Often some producer or manufacturer finds himself facing some difficulty or other which he lacks the necessary knowledge to overcome successfully. Upon inquiry he finds that others too are experiencing similar difficulty. The finding of some way to cope with it successfully is then no longer a matter of mere individual profit or loss, but it concerns the whole industry of which his business forms but a part. The discovery of a remedy may benefit not one but many business enterprises.

It is in cases of this kind that the experiment station may properly undertake to make scientific investigation of the facts for the purpose of discovering the laws or principles upon which successful practice may be based. Let me cite a few examples of this kind.

A few years ago the business of growing cucumbers for pickles was seriously threatened by a disease hitherto unknown. In southeastern New York, and particularly in portions Long Island, where the industry had grown to a considerable importance before the disease appeared, the losses became so great as to cause many growers to abandon the crop. Some of the growers appealed to the state experiment station for expert advice and assistance. The case was put into the hands of the station botanist, who found that the disease was caused by a mildew which was an active parasite on the cucumber plant. He then tried different treatments for the disease, until he discovered a way of holding it under control at comparatively small cost. He then took up a line of experiments for the purpose of demonstrating to growers in different localities that the disease could be controlled so that the crop could be grown again with profit. It is but just to claim that this work, which was carried on during three seasons, saved from destruction the important Long Island industry of pickle growing.

Another example of the economic importance of scientific work by specialists connected with experiment stations is found in the case of the treatment of peas in canneries. A canning company which was suffering much loss from the spoiling of canned peas applied to an experiment station for assistance. Inquiry developed the fact that the trouble was not confined to that particular cannery. The value of the output of canned peas in that state during the year in question was approximately \$1,500,000. The industry was of sufficient importance to justify the demand for an investigation of the cause of the fermentation in canned peas which was giving so much trouble. The station bacteriologist was accordingly assigned the task of undertaking to discover the cause and devise some remedy. He found large numbers of bacteria present in the cans of spoiled peas. By a series of cultures and inoculations, he succeeded in showing that the trouble was brought about by certain species of bacteria, the spores of which survived the heating process in canning. By experimenting, he then found out the lowest temperature and the shortest period of time for which the peas might be heated so as to insure the death of the bacteria without damaging the peas. Guided by the scientific knowledge of the facts thus obtained, the particular canning factory in question changed its methods of canning peas so that they reported the same year the prevention of a loss of several thousand dollars as the results of this one investigation. Moreover, it is clear that the investigation contributed to the fund of scientific knowledge of the business of canning peas in such a way as to be of permanent advantage to that industry wherever it may be established.

It would be easy to cite many other instances like those which have just been given, and show how the work of the experiment stations along the lines of chemistry, botany, entomology and other sciences bears an important relation to the economics of horticulture and agriculture.

In surveying the field of American horticulture, we have found a group of great and ever-growing industries. We have seen that in recent times there has come into existence a peculiar class of state institutions, the experiment stations, which are developing definite economic relations with these horticultural industries. The idea is gaining ground that whereas individual horticulturists often cannot afford the time or lack the training necessary to a scientific investigation of the problems with which they have to deal

in their work, it is good economy to have such investigation carried on for them by a public institution like the experiment station, which can be supplied with necessary facilities and provided with men specially trained for this class of work, and thus be able to accomplish valuable results in the interests of the industry as a whole. Investigations of this kind should add to our knowledge of plant-breeding, plant propagation, plant introduction, plant physiology, soil fertility, the management of trees and plants, the control of injurious insects and diseases, the picking, packing, handling and storing of fruits and vegetables, the manufacture of fruit products, and other lines of inquiry that are of economic importance in horticulture.

It is evident to those who have given particular attention to the subject that not all of the work which has been carried on at our experiment stations is of as high a grade as that which was done for the pickle industry and canning industry, as described above. This raises the question as to what kind of work on the part of our experiment stations we as horticulturists should support and encourage. Is it for our best interests to clamor for quick returns and encourage the sensational exploiting of immature work, to gain popular applause and approval? If such a course is pursued, it must almost surely be done at the expense of solid, substantial progress. We should feel that these stations have it in their power to do good work for horticulture, and, therefore, as horticulturists we should interest ourselves in the policy of these institutions. Let us stand for the policy of raising the work to such a scientific grade that it will be of the most farreaching and lasting benefit to the industries concerned. The founders of these stations did wisely in specifically providing that they should carry on scientific investigations in agriculture. Those who have now succeeded to the support and control of these stations will do wisely in requiring that the investigations which are conducted by these institutions shall be planned and executed upon a good, scientific basis.

Such work will require good equipment, liberal support, and well-trained workers, but the results, viewed from the economic standpoint alone, will repay the effort many fold.

PROF. T. J. BURRILL: May I say a word in regard to the history of Illinois with reference to the influence of horticulturists upon the state or the country at large? The Illinois society celebrated its fiftieth anniversary two weeks ago, and there were quite a number of the founders present, and there was a good deal said in the program about their early work and the conditions of the country when they began their work, fifty years before. If one could take what was given at that meeting and put it together, I am sure the conclusion would be reached that those men, some twenty or twentyfive of them especially, were instrumental above themselves, above perhaps any other twenty-five men that could be found in the state, in opening up the immense resources in that new country. When you take the original roll of that young horticultural society, you can find there the names of the men who have accomplished things that counted for most in the early history of the state. That roll is a roll of honor to-day. I believe that there is something both ways in this matter of horticulture. There is a thing to be produced because of the plants or the value of the products or the crops; and there is something reflex from this work upon the men themselves. The men who engage in horticulture show more of the real elements of manhood; the women who have to do with it show more of the real elements of womanhood. I know that there are callings that are demoralizing, debasing, and depressing, but I think it is quite the other way in horticulture. All of the influences of horticulture are ennobling and uplifting, and contribute to the welfare of the people doing the work. A dishonest horticulturist is very quickly found out, and his career is inevitably short. It is the honest man who will put his own label on the stuff he sends out and allow his name to go with it all the time. He is the man who will stay in the business and who will accomplish something for the benefit of himself and for the benefit of his neighbor and his state. I believe, sir, in the business of the horticulturist, and I believe thoroughly in the honest horticulturist! (Applause.)

PRESIDENT HOLSINGER: We will now hear from some of our horticulturists, before final adjournment.

WESLEY GREEN, of Iowa, was called for, and spoke as follows:

Mr. President, I have enjoyed this meeting very much. I thought you had so much to do and say that it was n't necessary for me to take any of your time. Having been with you and enjoyed your meeting, I might, however, give you just a little of our experience in Iowa.

In about fifty years' work along horticultural lines in Iowa, we have, I think, learned a few things. We who began fifty years ago had to learn a great many things about a new country. In fifty years we have learned that this was a dry country. How to overcome that condition has been the work of a lifetime, but we have in a measure accomplished some results. It has been through tillage very largely, and in that time, too, we have had to make implements and improvements in implements for that tillage. The old implements used by the horticulturists of the East were not adapted or suited to the soil of the West, because we have a different soil formation. We had to make, as it were, new implements for our country. They were the outgrowth of the West. The implements used in the West are quite different from those used in the East. The methods of culture are quite different also. They have been the outgrowth of the climatic conditions of the country. We still have those conditions in the West, and more intense as we go further West. You will surely agree with the statement that if our forefathers had landed on the Pacific coast instead of the Atlantic coast, the progress of the United States would not have been as rapid as it has been, because the conditions of the tree growth are very much more favorable on the East coast than on the West coast, except the very small area along the Northwest where they have plenty of rainfall.

It is a well-established fact that trees will not grow successfully unless they have an abundance of moisture, because wherever we have a lack of moisture there we have a small tree growth. We have all over the West, in this dry, arid country, plants that adapt themselves to the conditions existing, but trees will not live and thrive, because they must have moisture.

These are things we have learned in the last fifty years, because we had not the experience until we came to that country. It will be some years yet before we can overcome all these conditions. We will never overcome them entirely, and yet we have advanced the tree-growing area very much further west than it was fifty years ago. I can remember when we first came to Iowa that all of the trees we found were along the river banks, in protected places, in the retentive soils—and it is true even now, and I advise our peo-

ple even now to select such places for their orchards. Do not attempt to grow a commercial orchard in soil unsuited, but select soils best adapted for tree growth, and you will succeed very much better. I believe you will find the same rule should apply here in Kansas. If you will plant your commercial orchards on a retentive soil, soil which will retain the greatest amount of moisture, you will succeed much better. I do not mean soils that are wet, because trees must have a reasonable amount of air. These are some of the things we have learned.

I believe we must study more carefully this matter and condition of climate with relation to our horticulture. We have not been giving nearly enough attention to it. We have not been giving enough attention to the effect o climate upon plants, but we should give more attention to that matter, because we know now that the climate has very much to do with it. I have been in the greenhouse business for over twenty-five years, and it makes me wish that every horticulturist could grow some plants under glass. They would learn more about plants if they should plan and furnish every condition which the plants require for growth. They would begin to think, How much moisture and soil does it really need? What must be the soil conditions? What must be the light and heat conditions to get perfect growth? I have noticed often, in our college gardens, many of our friends would come to me and ask: "Why is this geranium so long and lank-looking in the spring?" It is very easy to tell. If it is a long and lank plant and looks weak, you have had too much heat and too much moisture, and have not had light enough to develop the growth of the plant. It is a simple thing, indeed. The plant must be in a normal condition.

We have all these things and many others to learn in growing apples. In the northern part of Iowa we can keep the Wealthy well into the winter; in southern Iowa it is a fall apple—almost a summer [apple; and yet there is only a difference of about ten degrees temperature in the state; but that difference makes nearly a month's difference in the maturity of the one variety of apples. The same is true of the strawberry. Going down South through Florida, you can have strawberries almost the entire year. They commence there in December and continue until June? Why? Simply because the temperature is more regular. In California, along the mountains, they have strawberries throughout the entire year. It is simply a matter of temperature.

These things we must learn. In our work, we must know more thoroughly the actual conditions under which this or that plant grows, the amount of moisture it requires, the amount of sunshine it must have, and the necessary amount of heat.

I am surprised you have not had success with your red raspberries down here. It is a matter of climatic conditions very largely. It is something that requires more moisture and a little more shade. You have very much better success with the cap variety because they will stand a little more heat. They will grow as far South as Florida, but they have more of the dewberry tendency down that way. I thank you.

PROFESSOR BURRILL, of Illinois, was called for, and spoke as follows:

Mr. President, I do not feel justified in consuming any more of your time. I appreciate the state of Kansas quite thoroughly. I know what it has been and is; what it was yesterday and what it is to-day. I have heard

the word "breezy" used in connection with Kansas very frequently, and I am not disappointed at all in the atmosphere of this room! (Laughter.) It has been breezy and full of life and vim. I remarked to some people at the hotel to-day that these Kansas people have vim in them and they know how to go. I really think there is something in the atmosphere that helps bring one along; something about it that one absorbs that gives them new life and vigor. I tell you, ladies and gentlemen of the state of Kansas, you are setting an example to the world to-day in many matters, and I hope you will continue to do it. We are all proud of Kansas, I assure you. (Applause.)

After a few brief informal remarks by several memembers of the Society, the thirty-ninth annual meeting of the Kansas State Horticultural Society adjourned sine die.

MISCELLANEOUS PAPERS.

THE WORK OF THE BUREAU OF FORESTRY IN KANSAS.*

By WILLIAM L. HALL, Assistant Forester, Bureau of Forestry.

The Bureau of Forestry first undertook to encourage forest planting in the Western states in the year 1887, by the distribution of seeds and seedlings in limited quantities, so far as the supply would reach, to those who made application for them. As the funds were then very limited, but a small proportion of the applicants could be supplied.

The following table gives the results of the distribution in Kansas for the year 1887-'88:

Name of Species.	No. re- ports.	No. plants sent.	Per cent. living.
Pinus sylvestris (Scotch pine). Pinus austriaca (Austrian pine). Pinus strobus (White pine). Pinus laricio (Corsican pine). Pseudotsuga douglasii (Douglas spruce) Fraxinus viridis (Green ash). Prunus serotina (Black cherry). Gleditschia triacanthos (Hardy locust). Catalpa speciosa (Hardy catalpa). Acer dasycarpum (Silver-leaved maple) Negundo aceroides (Box-elder).	28 5 5 13 4 1 5 24	725 700 125 125 325 100 5 125 600 25	3.4 0.57
Total	116	2,880	14.76

This limited distribution continued annually without much variation, either in extent or results, until 1894, when it was abandoned on account of the exceedingly meager results from it. In fact, there can be no results pointed to that are satisfactory.

In 1895 the division of forestry began a series of cooperative experiments in forest planting with some fifteen state experiment stations, one of the number being the Kansas State Experiment Station, at Manhattan. The object of these experiments was to demonstrate the proper methods of forest planting, including the determination of desirable mixtures of species and also to test the adaptability of the different species for the different regions. The work thus begun was continued until 1899. The experiments at Manhattan were in the main successful, and attracted some attention from the immediate community. It became evident to the division, however, that experiments carried on in one place could not be made sufficiently valuable as an object-lesson over a large state such as Kansas. The divi-

^{*}Read before the semiannual meeting of the Kansas Horticultural Society, at Dodge City, Kan., May 11, 1904. Copy not received in time for last report.

sion therefore turned back the land, together with the planted trees, to the experiment stations and withdrew from the work.

Immediately thereafter it began a plan of cooperation with individual landowners. This plan was announced in circular No. 22, and is as follows:

"THE OFFER AND ITS OBJECT.

"The Bureau of Forestry gives practical assistance to landowners in establishing commercial forest plantations, shelter-belts, and windbreaks, and in reclaiming shifting sands and other waste lands by forest planting.

"The purpose of the bureau in its cooperation in forest planting, the plan of which has been followed continuously since July 8, 1899, is to establish in suitable localities examples of forest plantations of the highest possible usefulness and value to their owners.

"THE ASSISTANCE GIVEN.

"After an application for assistance in forest planting has been made and accepted, an agent of the bureau will, as soon as practicable, examine the land of the applicant, in order to determine the advisability of forest planting upon it. Upon small areas, where prolonged study or the services of assistants are not required, the agent making the examination will, when the planting is advisable, prepare a planting plan before leaving the ground. Upon larger areas, requiring prolonged study or the services of assistants, or both, the results of the examination to determine the advisability of planting will be embodied in a report to the owner. If the preparation of a planting plan is recommended, and, if the owner so desires, the bureau will, as soon as practicable, undertake its preparation.

"The planting plan contains detailed and comprehensive instructions for the necessary forest planting upon the area examined, based upon a thorough study on the ground. A copy of the planting plan, with all essential measurements, maps, and other data, is sent to the owner upon its completion.

"The bureau does not in any case furnish seeds or trees for planting. It participates in the expenses of planting only to the extent of defraying the salaries and, in certain cases, expenses for travel and subsistence of its agent or agents while making the planting plan, as specified in the tree-planting agreement. Preference in time of examination is given those applications which are likely to afford the most useful object-lessons.

"It is of first importance that the owner or his representative should accompany the agent, of whose arrival he will be notified in full time, in his examination. This is necessary in order that the agent making the examination may be fully informed of the wishes of the owner, to which, so far as practicable, the plan is made to conform.

"If upon receipt of the plan any point is not clear to the owner, he should call attention to it at once, in order that it may be more fully explained. When he has accepted the plan, he will be expected to enter upon its execution vigorously, to complete it within a reasonable time, and to give such reports upon the work as the bureau may request of him.

"The specific agreement under which the Department of Agriculture conducts cooperative work in forest planting is as follows:

"TREE-PLANTING AGREEMENT.

"The Department of Agriculture of the United States and	
The Department of Agriculture of the United States and	•••
and state of mutually agree as follows:	
"1. The Department of Agriculture, in pursuance of investigations in for estry, and in order to disseminate a knowledge of improved ways of planting	-
and developing forest plantations, wood-lots, shelter-belts, and windbreaks	g
shall, after personal study on the ground, by its agent or agents, prepare	8
plan for planting and caring for a forest plantation, wood-lot, shelter-belt, o	r
windbreak, on acres of land of the said situated and described as follows:	٠,
"Town of, county of	
state of	·
"2. The said plan shall be prepared for the purposes hereinbefore men tioned and to promote and increase the value and usefulness of said land t	i-
its owner by developing and perpetuating a plantation of forest-trees upon it	Ü.
"3. The Department of Agriculture shall not furnish seeds nor trees no	r
participate in any degree in the expenses of planting and tending said fores	t
plantation, wood-lot, shelter-belt or windbreak, nor share in any profit which may arise from its growth.	n
"4. The cost of the said plan to the owner shall be based upon the actua	
cost to the department of the necessary study on the ground. It may be	e
reduced in consideration of the usefulness of work under this agreement a	8
a practical example in tree planting. The said cost shall be paid as follows "(a) A preliminary examination, if necessary, shall be wholly at the	ė
charge of the department.	
"(b) The cost of the said plan to the said is esti	ا- ا-
necessary expenses for traveling and subsistence of the agent or agents of	f
the department, and of the necessary assistants engaged in the preparation	n
of the planting plan, and the wages of said assistants. "5. Upon the completion of said plan and its acceptance by the said	
, the Department of Agriculture shall supervise the execution	n
thereof, so far as may be necessary, at a cost to said owner of the actua	ıl
and necessary expenses for traveling and subsistence of the agent or agent of the department engaged in the work.	8
"6. What are 'actual and necessary expenses' shall in all cases under	r
"6. What are 'actual and necessary expenses' shall in all cases under this agreement be determined by the printed regulations of the department	
"7. The said shall, from time to time, make sucl reports as may be necessary upon the progress and results of planting under	h
this agreement, and the Department of Agriculture shall have the right to	ò
publish and distribute the said plan and its results, for the information of	f
others. "8. This agreement may be dissolved by either party upon ten days	,
notice given to the other.	,
(Signed)	٠.
Owner.	
(Signed)Secretary of Agriculture.	•
Post-omce: Date: Date:	
"The planting plan above mentioned, being completed, is now accepted and will be carried out under the conditions and during the validity of the	,
above agreement.	۳
(Signed)	
Owner.	

"HOW TO MAKE APPLICATION.

"Persons desiring the assistance of the Bureau of Forestry under the provisions of this circular should make application to the forester by letter, specifying the state, county, township, range and section on which the planting is contemplated, and giving the acreage to be planted and the time they desire to begin planting. Applications received during the fall and winter are not likely to receive attention before the following season on account of the impracticability of field-work in the winter.

GIFFORD PINCHOT, Forester.

"Approved: James Wilson, Secretary of Agriculture.

"WASHINGTON, D. C., March 18, 1904."

There have been made all together in Kansas, under the provisions of this plan of cooperation, forty-seven planting plans, in thirty-eight counties. The total area recommended for planting is 628 acres, of which I estimate that thirty per cent. has already been planted and fifty per cent. will ultimately be planted, giving a result of more than 300 acres to be actually planted in consequence of the bureau's cooperative work. The distinct value of this character of cooperative work is that it carries the influence of the bureau to the individual landowners in many sections of the state. When the bureau's representative goes to examine a farm very frequently a local meeting on tree-planting is held, at which considerable interest is often manifest, and sometimes a large amount of planting results; indeed very much more than is shown from the records, for very much planting may be done as a result of the work in addition to the planting done under the planting plans. The weakness of the plan is, that it has been difficult for the bureau to keep in as close touch with the farmer as is necessary in order to have the instructions of the plan carefully complied with and the work promptly carried out. This difficulty is to some extent being overcome. On the whole, the plan is the most desirable of any yet tried by the bureau, and seems capable of improvement to the extent of really giving effectual encouragement and direction to tree-planting.

In addition to the plan of cooperative work just described, the bureau has made several independent investigations of forest conditions in various portions of the state. During the year 1900-'01 extensive studies were made in the larger plantations of eastern Kansas to find their rate of growth and value. As a result of this investigation there was published in 1902 a bulletin entitled "The Hardy Catalpa in Commercial Plantations." This bulletin describes the growth of the hardy catalpa in four of the largest plantations in Kansas, namely, the Farlington forest and Hunnewell plantation, at Farlington, Crawford county, each including nearly 500 acres; the Munger plantation, at Eureka, containing 160 acres; and the Yaggy plantation, at Hutchinson, containing 440 acres. The influence of this bulletin has been very marked, not only in the encouragement of catalpa planting but in the direction which it has given to planters on the conditions under which the hardy catalpa may successfully be grown.

In 1903 an extensive study of planted timber in western Kansas was made by the bureau under the direction of Mr. R. S. Kellogg. Mr. Kellogg has made a comprehensive report upon his study, which is now in press and should be ready for distribution by the 1st of June.

In the fall of 1903 a rather thorough reconnaissance of the flood-damaged

land in the Kansas river valley was made by Mr. George L. Clothier, of the Bureau. Mr. Clothier found, just as had been previously announced by Prof. A. Dickens, of the State Experiment Station, that a great deal of the sanded and eroded land may be reclaimed by the planting of forest-trees. The results of his study, together with his recommendations, are to be found in circular No. 27.

At various times during the past four years a large amount of data has been collected on the character and growth of the natural timber belts within the state. Mr. Kellogg is now compiling the data which have been collected for the western part of the state, and it is expected that this will be published within a few months.

WORK OF THE FUTURE.

- 1. It is the purpose of the Bureau of Forestry to continue its cooperation with individual landowners in accordance with the plan already outlined. It believes that in this plan it has found the principle of effectual cooperative work, and thinks it necessary only to perfect the details of the system in order to make available its best aid for forest planting in the future.
- 2. As occasion arises, the bureau will make independent studies on problems connected with the planting and growth of forest plantations.
- 3. It is the purpose of the Bureau of Forestry to secure if possible a reserve in the sand-hill portion of Finney, Kearny, Grant and Haskell counties, for the purpose of planting an extensive forest upon it. Two reserves of this kind have been established in Nebraska, where similar conditions existed to those on the proposed reserve in Kansas. The bureau has satisfied itself by thorough investigations that these sand-hill regions will support permanently a fair growth of certain valuable kinds of forest-trees, especially some of the pines and Red cedar. If this reserve is established, the bureau will, as soon as it can conveniently do so, enter upon a rather extensive program of forest planting, On the Dismal River reserve, in Nebraska, where work began two years ago, we have upwards of one million seedlings growing, and hope to be able within two or three years to plant annually about 1000 acres.

SPRAYING.

Why has spraying been necessary? Why have we more insects than previous generations?

There are several reasons. One is that civilization has brought forward, by planting, more of the best insect foods, and naturally the increase is proportionate. Another reason is that this same civilization changes the conditions in the animal kingdom.

We and our boys, our cats and our dogs, destroy the birds, the snakes, the toads, and other enemies of the insect world; consequently the insects increase. We destroy the wolves and coyotes, and the rabbits, mice, gophers, moles and prairie-dogs increase. We make laws to protect birds, and then buy Johnny a gun and a neat cabinet for a collection of birds' eggs and nests. We even imprison live red birds, mocking-birds, and finches. We are now reaping what we have sown.

I would here advise every farmer and horticulturist to put up boxes for the various birds, not forgetting the owls. Keep down the crows, the blue jays, and the cats. Arrest the sportsmen that kill birds, and thrash the boy that robs birds' nests. Now, owing to our own short-sightedness, we must spray or quit looking for fruit.

A few words about what to spray for. Our commonest pests are the apple-worm, found within the apple; it is the larva of the codling-moth. (Webster says a codling is a young, immature apple.) The adult moth flies at night and does no harm to vegetation; but her progeny cause millions of loss every year. A large part of the fruit attacked falls at various stages of growth; in the others the worm generally shows up, to our disgust, while eating the apple.

The canker-worm is a leaf-eater, and as they are often hatched by millions they denude the trees of foliage, destroying their vigor and stunting the fruit.

The tent-caterpillar destroys in the same manner, but does not live the same, and the nests or tents, being readily found, present a good way for an energetic person to fight them. Then there is the bitter rot and the scab, which are diseases stunting the fruit, giving it a gnarled appearance, or destroying it wholly. Each and every one of the above destroy the food value and commercial value of the fruit. Many other destructive insects are destroyed by the spraying given for the above. If your orchard is not worth spraying, or you are too indifferent to care, then you should either be compelled to spray or cut down such insect-breeding places.

Let us here say a word about spraying-machines. The great sprayers are generally made up of a tank for the liquid, a pump to throw it on the trees, some kind of power to run the pump, and a nozzle to distribute the spray evenly and finely. It has been estimated that one such machine is needed for each sixty acres of orchard in order to do the work promptly and in time.

POWER SPRAYERS.

Gasoline-engine. - Points to inquire into:

Weight.-Remember the engine must be hauled, together with pump, tank, and liquid contents. Simplicity.-Examine and comprehend every part before you buy. You don't want one that requires a machinist to oversee. Durability.-Don't get an engine that will soon wear out. Water- or air-cooled.—The cylinder of all gas-engines must be kept cool. Most of them require that you haul along 60 to 100 pounds of water to cool it. Aircoolers are now made which fan the cylinder. Other things being equal, these save much dead weight. Power.-Know that your machine has the requisite power and get proof of such power before purchasing. Availability. - Gasoline-engines are useful on a farm to pump water, saw wood, churn, run separator, grindstone, and other machines. Get one that can be thus utilized when not needed for spraying. Cost.-Don't pay too much, yet avoid cheapness. Three-fourths of the price is for advertising, agents' fees, fine warehouses, etc. Farmers encourage such expenditures, even extravagance, by paying for it all. Beautiful pictures in high-priced magazines, elegant offices in costly buildings, plug hats and kid gloves on dainty agents, are all paid for by the consumer.

The Pump.—Material.—The parts coming in contact with the spray mixture must be of material that will not corrode. Brass or glass are probably the best. All other parts should be of good material, to stand the work.

Power.—See that the pump delivers with force, and keeps it up. See, also, that it is connected with the engine in a simple, sure and reliable manner, utilizing all the power and wasting no power. Capacity. - The pump should deliver all the material six or eight nozzles can eject. Simplicity. - Avoid a complicated pump; few parts, and each a necessity, and each useful; it should also be compact. Durability. - Good material, not necessarily thick and heavy, but each part honestly made. Cost. - Don't pay for "wind or sky": demand value received. Agitator.—This is a vital necessity, and they vary greatly. Some manufacturers underestimate their value. Unless the liquid is constantly agitated, the poison will settle, and your first spraying will be water, and the later thick with chemicals. The agitator should convey a lifting motion to the liquid, thus causing an upward current, throwing the heavy chemicals toward the top. See that it is well made, durable, and capable. Strainer.—The most troublesome and vexatious little thing about spraying is caused by sediment in the liquid getting up to the nozzle and clogging the passage, stopping operations, and killing time. This should be avoided by using a strainer. This strainer is best made of brass hair-wire, such as is used in milk-strainers. It may be bought by the square yard, and made into such form as to drop into, and completely fill the intake of the tank; through this strainer every drop of liquid should pass to enter the tank. When this strainer is lifted out, hang it up; do not allow it, for a moment, to touch the ground, or some dirt will cling to the outside, and you will hear from it, later on, at the nozzle. Wash the strainer often.

Tanks.—Material.—At present most tanks are made of wood, and hold from 150 to 200 gallons. Height.—This is very important. The lower the tank the easier to fill and the steadier the carriage. Upright tanks are objectionable, as they are hard and slow to fill, unless the liquids are elevated. Excepting for Bordeaux, a tank that can be backed into a pond or stream until the water comes near the top can be quickly filled with a bucket, if it has a good intake. Outlet, or passage from tank to pump, should be so located that it may be readily examined and kept clean. Standing room.—It is convenient to stand on the tank to hold the nozzles. Notice if there is room, and also a comfortable place for the driver. Do not wait until in the orchard you find that both must walk. Team.—Use a slow, steady team; a fractious team has no business with the spray wagon.

STEAM POWER.

To the above may be added sprayers using steam power, but, owing to the added weight of a boiler and furnace, with the attention required, and the tender for fuel and water, require too many teams and men.

TRACTION POWER.

There are some good sprayers that take the pump power from sprockets on the wheels. Messrs. Wellhouse & Son use a cart, the tank hung very low, the pump being a rotary, run by a chain and sprocket-wheels attached to the cart wheel. An air-chamber should be provided, so that the spraying may be continuous.

HAND SPRAYERS.

These may be a tank on wagon, or a barrel on a hand-cart or on a sled, or it may be on a wheelbarrow, in the hand, or on the back. An excellent sprayer for a limited orchard and unlimited muscle is a good spray-pump

mounted on an ordinary water wagon; for a small orchard the barrel sprayer is good. The essential parts are a good spray-pump and a good agitator. Any tight barrel will answer. It may be mounted on a wagon, a sled, a drag, or a hand-cart. Ingenuity and grit will fix it all right. There are small can-and knapsack-sprayers; the one is carried in the hand; the other mounted on the back. These are worked by an air-pump very much like the atomizers in use for perfumes, disinfectants, etc. For a few bushes or small trees, a bucket to hold the liquid and a whisk-broom to dip and distribute the liquid will be found quite sufficient.

AN EXCELLENT BULLETIN ON SPRAYING.

[The following bulletin, No. 52, from the Ohio Agricultural Experiment Station, Wooster, Ohio, March 1, 1905, by H. A. Gossard, is so good, I venture to add it here.]

The following program for orchard practice in entomology is designed to suggest to the orchardist what enemies are most apt to cause him trouble, when to look for them, and what to do to forestall them. Not all of the enemies mentioned are apt to occur in injurious numbers the same season in one orchard, but since several of them are sure to be present, the best practice is to keep a lookout for all, and omit only such operations as are proved unnecessary by examination. If careful attention is given to this program for two or three years, the number of operations necessary will be found to constantly diminish until the really important ones will be found to consist in a few regular sprayings each season for those insects which are always present, and an occasional campaign against a pest of secondary importance, which for a while has become worse than usual.

APPLE.

January.—Pick off elinging dead leaves and burn. Feed the winter birds in the orchard. Prune out egg-masses of tent caterpillars, etc.

February.—Continue the work unfinished from January. If banding is needed for canker-worms, put on bands, soon after the middle of this month. Scrape off the loose bark from the trunk and large limbs with a sharp hoe. Remove cocoons of fall web-worm and similar hibernating forms from cavities, etc.

March.—Continue any unfinished work of preceding months. Prune out twigs on which eggs of plant-lice are numerous, also those containing eggs of tree-cricket and buffalo treehopper. Fill up cavities in trunks with cement, first cutting out all rotten wood and singeing the cut surface with a blast lamp. If San Jose scale is present, spray with lime-sulphur wash. Oyster-shell scale and Scurfy bark-louse may be treated in the same way. Construct suitable bird-houses, so as to entice insectivorous birds to nest in the orchard.

April and May.—If bud worms or case-bearers are present in large numbers, spray with arsenicals just before leaf-buds burst. For the two insects mentioned in preceding paragraph, make a second spraying a week later, or just when the leaf-buds begin to show green at the tips. Just before the blossoms open, spray with Bordeaux, combined with an arsenite, for cankerworms, tent-caterpillars, plum-curculio, scab, leaf-spot, etc.; a very important application. Just after the blossoms fall, or while they are falling, repeat the foregoing for codling-moth, canker-worms, curculio, tent-cater-

pillars, and fungous diseases. Very important against codling-moth. Repeat in about seven or ten days. Examine trunks and large limbs for borers and destroy all found with knife, probe, or carbon bisulfide.

May and June.—If plant-lice or aphids become threatening, spray with whale-oil soap, one pound in seven gallons of water. In late May or early June the eggs of Scurfy scale and Oyster-shell scale begin to hatch, and, as soon as hatching period is completed, the young can be destroyed with kerosene emulsion, one part to nine of water, or with one pound of whale-oil-soap dissolved in seven gallons of water. A shallow fountain or tank which affords a drinking and bathing place for birds throughout the summer will do much to encourage their presence.

June.—Where the banding method of fighting codling-moth is used in conjunction with spraying, put the bands in place about the 1st of June.

July.—Spray about the last week in July with Bordeaux, combined with an arsenite, for second brood of codling-moth, tussock-moth, yellow-necked caterpillar, fungous diseases, etc. In the latter part of July look for young colonies of the yellow-necked caterpillars feeding gregariously on under side of leaves. Cut off infested branches while worms are young and destroy.

July and August.—During these months and September, keep trunks and larger limbs covered with whitewash or with carbolized whale-oil-soap spray to prevent borers.

September and October.—When webs of fall web-worm are observed, either cut out the branches to which web is fastened and burn or destroy nest while on tree by holding a lighted torch beneath it.

November and December.—Clean up and burn all fallen limbs and so far as possible reduce the number of hiding-places for hibernating insects.

PEAR.

The program for care of the apple orchard will serve very well for the pear orchard also. The following additions are made, relative to insects which are special pests of the pear:

March.—When buds are swelling, spray with lime-sulphur wash for psylla and for blister-mite of the leaf.

June.—As soon as pear-tree slugs appear on the leaves, spray with an arsenite, with kerosene emulsion or with decoction of white hellebore; or apply mixture of hellebore with flour or lime with powder-gun.

QUINCE.

Follow the same schedule for examinations for quince insects as for apple and pear, and when apple and pear insects are found attacking it, employ the methods given for these insects. The apple-borers and the codlingmoth attack this fruit. The quince curculio comes from late May until July, and may be fought by jarring.

PEACH.

January, February, and March.—The program is substantially the same as that given for apple.

April and May.—If San Jose scale is present, spray with lime-sulphur wash. This will also prevent leaf-curl. Two or three sprayings with arsenate of lead may be given to prevent curculio, or jarring may be com

menced as soon as the trees are in blossom, and should continue for six or eight weeks. Spraying should be made with arsenate of lead only, and in combination with weak Bordeaux, or in water alone. First spraying, as soon as leaves begin to appear, and the others at intervals of ten days or two weeks. Examine the base of trunks beneath the surface of the ground, and all gummy places, for larvæ of peach-borer. Destroy borers with knife or boiling water. If plant-lice become abundant, spray with whale-oil soap, one pound in seven or eight gallons of water.

June.—Early in month mound up trunk of tree with fine earth to a height of eight or ten inches and pack tightly, to compel borer moths to lay their eggs high on the trunk; or spray trunks with carbolized whale-oil-soap spray, and repeat this treatment once each month, ending with September. This will act as check against all borers. If pigs are pastured in the orchard this month, and for two or three weeks following, they will devour the curculio larvæ and break up the pupal cells of the insect in the earth. Cultivation during these months will accomplish the same result; not practicable where the grass-mulch system is used.

August.—About first of month examine for peach-borer larvæ and destroy all found.

October. - Make second examination for peach-borer larvæ and destroy all that are found.

November and December. - Clean up fallen limbs, etc.

PLUM.

January, February, and March.—Follow substantially the same program as for apple. If eulecaniums or soft scales are present, spray with kerosene emulsion, one part to four or five parts of water.

April and May.—Curculio is the principal offender at this time and may be treated as given for peach. If plant-lice are troublesome, spray with whale-oil soap, one pound in seven or eight gallons of water.

July and August.—Follow program given for apple and peach against borers.

August.—Peach-borer should be sought for and destroyed where found. October.—Repeat examination for peach-borer larvæ.

CHERRY.

Follow same program as for plum, keeping special lookout for soft scale, curculio, and plant-lice. Slugs also attack cherry, and may be treated as given for pear slugs.

FORMULAS.

Bordeaux.—Named after the city of Bordeaux, France, where it originated. Used for all kinds of fungous diseases, such as scab and bitter rot on apples, black and brown rot on grapes, etc. While it may have some deleterious effect on insect life, it is not an insect poison, but may be combined with poison, as shown below. This is a mixture of copper sulfate (also called bluestone, blue vitriol, etc.) mixed with water. In this condition it is found that it colors the leaves (burns them), destroying their texture and utility; to correct this, lime is added. Thus, four pounds of sulfate of cop-

per, four (or more) pounds of lime (fresh), and fifty gallons of water. For peach, double the amount of water. The secret of making the best mixture is to dissolve the sulfate by placing it in a gunny-sack and hanging it in a barrel of water, slaking the lime in a separate vessel, and, when both are dissolved, allowing the two mixtures to run out simultaneously into a third vessel at a lower elevation. This is used for all fungous troubles. For leaf-eating insects, like canker-worm, tent-caterpillar, bud moth, etc., take one pound of Paris green, two pounds of lime, to 100 gallons of water. If economy of labor is desired, both objects can be accomplished at one spraying by adding the Paris green to the Bordeaux mixture.

White Arsenic Solution.—For leaf-eaters. One pound white arsenic, four pounds sal soda, one gallon of water. The above should be boiled together until all the arsenic is dissolved, which takes about fifteen to twenty minutes. Use one pint of this solution with two pounds of slaked lime to forty gallons of clear water. This formula is taking a leading place.

Resin and Lime.—For leaf-eaters. This is used on cabbage and other smooth-leaved plants, as it adheres well.

Resin, pulverized, five pounds; concentrated lye, one pound; fish or animal oil, one pint; water, five gallons. This is made with heat. Heat the resin, the oil, and one gallon of the water, until the resin is soft, then add the lye and balance of water, and boil two hours, when the mixture should unite with cold water, which add to make five gallons in all. For spraying, use one gallon of above mixture, three gallons lime wash, one-quarter pound of Paris green, and ten gallons of pure water.

Kerosene Emulsion, with Milk.—Kills, by contact, scale, aphis, and sucking insects. Refined kerosene, two parts; cows' milk, either sweet or sour, one part; churn until smooth; add twelve to sixteen times its bulk of clear water.

Kerosene Emulsion, with Soap.—Dissolve four pounds of yellow bar soap in one gallon of water; add gradually, stirring or churning all the time, one gallon of kerosene. The greater the proportion of resin in the soap the better the mixture.

Another Formula.—Kerosene, two gallons; common soap, one-half pound; water, one gallon. Dissolve the soap in the water by boiling, and add it boiling hot to the kerosene; churn for five or ten minutes (best done with a force-pump, turning the nozzle back into the mixture).

CANKER-WORM.

Remedies.—Bands smeared with sticky material put tightly around the tree bole early in January, or even in December, will stop many a female from crawling up to lay her eggs. (See below.) Spraying with London purple or Paris green, one pound with two pounds of lime and 150 gallons of water, is the common remedy. To be efficacious, the drug must be of a normal strength, say forty-five per cent. arsenic, and as the worms grow larger and stronger the water must be lessened. When the worms are an inch or more long it may require only fifty gallons of water. Another formula is, two pounds white arsenic, four pounds sal soda, two gallons of water; boil until the arsenic is dissolved. One pint is enough for forty gallons of water. As the worms usually feed on the under side of the leaves,

spraying should be from below as much as possible. "The early bird catches the worm" is true here. Therefore, spray while the worms are tiny and the foliage thin, and the work will count as the "stitch in time," destroying 999.



Fig. 1. Adult female.



Fig. 2.
a, Eggs deposited at base of limb.
b, Egg mass.

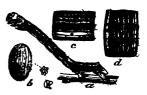


Fig. 3.
a, Larva, or worm,
b, Cluster, and a magnified egg.

Spray just as the buds begin to pop open and the tree shows new growth; then spray again just before the flowers open; and again immediately after they drop their petals.

Dust spraying is good, but not equal to liquid spraying. If water is scarce, if your orchard is on rough, steep or very rocky ground, or if you wish to help out the liquid sprayers at a busy season, use some dust sprayers. In using the dust sprayers, send your men into the orchard at four o'clock A. M., and let them work until eight A. M. This is the dampest time, and, usually, the least windy, and the dust will stick better. Allow your men a half day's pay for these four hours.

Banding, to be effective, should be put on in December or early in January. The female parent of the canker-worm is practically frost-proof; she often comes out of the earth during sunny spells in December or January and ascends the tree to lay her eggs on the sunny side. It is said she freezes at night, and, warmed by the next day's sun, resumes operations. A leading horticulturist says he has seen hundreds of them frozen in the ice in small ponds surrounding a low-set tree, and that they thawed when the ice melted and went actively to work.

There are many styles of band in use, patented and otherwise. A piece of mosquito-wire screen five inches wide, long enough to surround the tree, if fastened tightly near the upper edge with a string, a wire, or tacks, and the lower edge made to flare away from the tree, makes a good protector. Be sure it is closed at the top, so she cannot crawl through. Some will get fast in the mesh; some will lay eggs under it; none will get above it. No patent band is any surer or cheaper. A band of heavy paper fastened on in same or a similar way, and after it is on smeared on the outside with any sticky substance, such as printers' ink, or resin and lard melted together, will stop her. This mixture should be renewed often, as dust and flying fibers will bridge it over. With a pot of the mixture and a soft paint-brush or swab, the stuff can be applied readily. Bands are unsightly and useless after March 1. Do not, under any kind of persuasion, use a band of cotton saturated with coal-oil, unless you wish to be rid of the tree.

CODLING-MOTH.

The apple-worm, which every apple eater has found many times in the apple, is the child of the codling-moth. (See b, fig. 4.) It is a scourge all over the apple-growing district. It destroys or reduces the value of the apple crop many millions of dollars annually.



Fig. 4.

a, Female codling-moth.
b, Larva of same in apple.

The parent—adult insect, or moth (see a, fig. 4)—is a small moth with a spread of wings three-fourths of an inch, the first pair marked with wavy lines of gray and brown, with a large, oval brown spot, streaked coppery, on hinder margin. The hind wings are yellowish brown. These moths appear, and begin to lay on the surface of the leaves, in the calyx, or on the surface of the apple, about the 1st of May. The eggs hatch in about one week, and the young worm immediately begins to burrow into the apple, working its way to the center, where it works around the core, gaining strength and size for about three weeks, when it leaves the apple and seeks a hiding-place in which to spin its cocoon, the favorite place being under projections of the rough bark of the tree. When first hatched these worms are small, hardly one-eighth of an inch long, white, with a black head and shoulders. When mature, the body is pinkish and the head and shoulders brown. The adult (a, fig. 4) issues from the cocoon in about two weeks, appearing near June 15. They commence at once to lay eggs. The worms of this, the second brood, live in the apple all winter, and it is these that disgust the apple eater and cut the profits of the orchardist.

Remedies.—The same spray as for canker-worms, used just after the petals of the blossom fall. No eggs are deposited earlier than this. At this time the calyx cup is open, and a little poison in it is apt to prove fatal to the infant worm. In a few days after the egg is laid the calyx closes, and no spray will reach the worm. Remember, this early spraying does away with the parents of the second brood, and hence should not be neglected. Bands of burlap, paper, or other material, loosely tied about the tree before June 1, make attractive places for the worms to pupate in. These bands should be examined often, say weekly, and all worms killed. Fallen fruit should be gathered and fed to stock, buried, or burned. Cellars, caves and fruit-houses should be thoroughly cleaned and fumigated and the cleanings burned every spring, as many thousands of moths are wintered over in them.

It is said that a parasite has been found that destroys the larva of the codling-moth. No better news could obtain for the apple orchardist. We are not ready to say how true this is, but have reason to believe it.

TENT-CATERPILLAR.



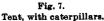






Fig. 8.
Tent-caterpillar; the worm.



Fig. 6. Egg mass surrounding twig.

Nearly every one has seen the "tents" of these in neglected trees. (See fig. 7.) They usually betoken the too busy man—the man with too many irons in the fire. They are large, unsightly bunches of webs, closely woven together at the forks of twigs at the ends of limbs or branches. The parents of these worms are moths (see fig. 5) which appear in June each year, and deposit their eggs in clusters containing 200 or 300, surrounding small twigs. (See fig. 6.) Sharp eyes, a sharp knife and nimble fingers will bring many to the kitchen fire. These eggs hatch in the warm days of spring, and the tiny worms immediately seek and devour the tender buds and leaves. The day they hatch they begin to build the "tent." Those from the same mass of eggs, say 250, combine to make the home nest or tent. They come out from this tent to feed in the morning, return for a siesta or sleep, and emerge again in the afternoon for a second feed.

They live in this way four or five weeks, becoming, when full grown, about two inches long and nearly as large as a lead-pencil. (See fig. 8.) They are black, with light-colored tufts of hair on the back. Down the center of the back is a white line bordered with irregular yellowish lines. The sides of the body are marked with pale blue, while the under side of the worm is black. When grown they pass to the ground and hunt a sheltered place, where they spin a cocoon, from which, in about three weeks, emerges the adult moth (fig. 5), the color of which varies from yellowish to reddish brown. The front wings each contain two oblique, whitish lines, dividing the wing into three nearly equal parts. These moths are night flyers during the last half of June and first half of July. They eat nothing. The female lays her eggs as described, and dies.

Remedies.—Spare the birds; put up boxes for the bats and owls. Kill the cats. Cut off the egg clusters during the winter. Cut and burn the tents, or burn the tents on the trees, with any kind of a torch. Early morning or late evening is the time, as they are then all at home. Spray the foliage nearest the tents with solutions for canker-worm.

HORTICULTURAL STATISTICS, 1905.

NUMBER OF FRUIT-TREES OF BEARING AGE.

Counties.	Apple.	Pear.	Peach.	Plum.	Cherry.	Quince.	Apricot.
THE STATE	6,896,082	256,751	4,695,496	902,898	760,095	11,685	169,561
Allen	79,382 78,587 128,089 17,488 27,467	2,742 2,822 5,111 821 1,805	21,642 25,841 39,161 31,408 37,805	5,441 5,498 4,910 8,556 5,195	3,082 4,210 7,516 4,482 11,528	178 131 50 46 9	318 336 178 2,188 1,614
Bourbon	61,877 108,145 154,987 48,850 72,513	3,162 2,728 4,323 1,200 2,554	21,074 44,562 76,672 21,450 25,089	6,588 10,028 9,867 4,076 11,178	2,480 8,601 9,180 3,106 5,650	166 38 160 25 114	91 392 3,810 753 501
Cherokee	252,924 582 1,248 66,728 58,940	1,570 95 101 2,043 1,196	22,849 738 2,896 70,228 89,406	11,784 2,969 714 8,221 4,004	5,288 1,578 465 9,607 11,992	346 1 34 20	187 11 196 1,561 4,520
Coffey	129,686 2,750 172,020 105,545 3,834	8,435 245 8,158 2,836 486	48,024 9,812 91,104 16,242 27,072	7,690 954 16,736 7,916 4,987	5,564 1,950 14,950 3,243 8,882	255 4 542 231 1	554 352 3,465 107 551
Dickinson	102,561 249,906 108,119 5,263 110,218	4,837 8,738 11,608 1,101 8,110	93,047 74,848 59,810 27,499 83,625	7,810 12,167 8,741 9,968 12,445	12,769 8,060 9,850 5,942 6,476	228 105 362 3 179	6,669 525 606 1,112 491
Ellis Ellsworth Finney Ford Franklin	1 7.647	119 812 330 330 8,543	5,902 28,574 6,599 23,259 40,923	6,885 2,141 6,324 4,261 4,905	2,806 5,879 2,428 6,935 10,716	28 15 7 4 196	855 1,148 192 1,292 330
Geary GoveGraham Grant Gray	2,782 34	946 896 194 1	20,428 12,757 80,268 2,921 4,481	2,181 14,776 7,802 1,010 1,004	3,906 2,668 5,206 340 1,352	20 8 3	441 279 1,319 95 224
Greeley	147,182 1,520 53,779	4,035 207 2,292 5,157	290 45,747 1,475 47,084 48,918	472 14,476 1,332 7,205 7,880	294 7,271 779 8,721 9,201	238 87 295	9 654 10 8,014 7,212
Haskell Hodgeman Jackson Jefferson	1,169 145,831	224 3,487 7,188	525 8,432 71,579 80,988	86 2,898 8,802 7,353	282 1,939 10,599 10,474	24 67 171	2 864 808 582
Jewell Johnson Kearny Kingman	70,552 6,971	1,773 8,809 91 1,729	293,992 59,858 7,787 52,567	10,842 6,071 6,638 6,848	24,368 8,284 1,578 8,481	41 135 6 158	8,502 221 559 2,974
Kiowa Labette Lane Leavenworth	165.037	258 7,388 229 6,497	24,510 29,138 6,744 58,474	2,007 15,336 9,421 6,494	2,140 6,147 2,088 6,618	748 4 298	483 339 90 359

NUMBER OF FRUIT-TREES OF BEARING AGE-COMOLUDED.

Counties.	Apple.	Pear.	Peach.	Plum.	Cherry.	Quinee.	Apricot.
LincolnLinn Logan Lyon	24,746 68,467 1,699 198,917 94,466	858 8,585 151 7,665 6,570	61,281 87,067 2,988 54,810 46,287	3,983 9,909 1,586 8,278 5,361	8,296 7,121 1,412 8,048 10,179	17 199 3 315 164	3,060 275 298 1,335 10,986
Marshall MoPherson Meade Miami Mitchell	125,228 105,724 1,859 95,048 80,821	2,178 4,546 122 3,987 721	160,789 47,854 9,566 89,787 61,887	6,286 6,184 1,883 6,226 2,878	12,172 15,871 3,368 6,073 8,694	178 155 10	1,178 13,656 334 278 4,577
Montgomery Morris Morton Nemaha Neosho	78,826 106,541 122 169,744 90,668	8,598 2,865 2 3,676 2,572	26,296 70,065 225 89,869 26,448	15,856 4,204 705 7,617 12,541	5,256 6,454 5 15,854 4,021	278 70 115 297	549 1,694 8 1,176 247
Ness	2,188 6,918 198,579 22,348 84,584	271 285 4,880 1,284 1,158	15,697 59,054 54,048 103,168 57,920	15,847 4,611 5,057 4,422 4,536	4,337 11,394 10,080 9,750 10,277	6 5 426 69 84	6,410 3,363 1,057 1,868 2,048
Pawnee	18,987 16,084 93,725 11,088 1,829	1,588 488 2,294 763 38	18,896 106,771 47,244 48,625 1,876	8,208 5,870 4,850 8,664 470	7,715 14,758 7,448 8,884 1,947	110 1 67 82 22 64	604 2,886 464 2,142 812
Reno. Republic Rice Biley Rooks	265,744 136,415 68,885 97,238 9,321	12,390 2,252 8,568 2,058 402	154,561 129,688 58,204 45,708 78,316	21,779 5,894 4,747 3,809 5,504	28,019 12,976 14,782 7,066 8,589	355 87 92 24 2	10,815 3,082 3,282 700 789
Rush	8,358 7,067 51,299 893 177,697	508 452 2,226 30 8,040	9,228 27,197 51,814 4,963 83,870	5,966 1,464 5,592 5,578 14,887	7,890 5,470 7,550 2,244 18,796	5 27 49 545	1,064 719 1,787 324 5,469
Seward	817 186,590 2,723 229 38,230	5,578 5,578 884 12 417	2,174 81,237 11,357 404 253,880	4,119 8,784 5,791 4,991 7,989	256 15,520 4,660 425 17,894	2 167 4 51 56	271 594 274 88 5,387
Stafford	84,614 71	2,970	78,422 1,335	12,872 1,047	19,201 158	15	2,427 102
Sumner Thomas	105,085 846	6,220	81,218 2,937	8,880 4,965	18,961 1,701	106	4,758 165
Trego. Wabaunsee. Wallace Washington	1,433 10,809 608 180,786	189 3,141 87 2,964	9,959 41,284 1,464 112,549	13,163 4,308 3,133 9,419	1,881 7,845 406 15,486	80 1 38	576 1,175 158 1,657
Wichita	878 88,703 62,391 132,774	2,076 2,864 13,760	2,115 20,656 20,599 129,087	988 7,278 6,829 20,754	1,021 3,997 4,082 27,289	7 219 248 952	75 204 340 204

^{*}No report.

NUMBER OF FRUIT-TREES NOT OF BEARING AGE, 1905.

COUNTIES.	Apple.	Pear.	Peach.	Plom.	Cherry.	Quines.	Apricot.
THE STATE	2,072,081	168,878	1,145,924	219,802	880,089	7,178	67,148
Allen	12,118 21,087 36,448 17,506 18,178	2,175 1,429 1,257 1,185 1,246	6,642 6,834 10,415 85,802 12,911	1,728 1,811 1,225 2,504 1,864	2,228 2,482 3,098 3,425 8,114	29 55 21 68 6	115 169 46 1,242 965
Bourbon Brown Butler Chase. Chautauqua.	15,192 14,855 85,138 11,405 20,220	1,576 938 8,411 755 2,181	7,780 7,684 24,266 6,319 11,042	1,652 1,193 3,660 383 2,694	1,554 1,589 5,707 1,806 2,782	39 20 144 19 410	76 89 1,709 231 441
Cherokee	20,687 828 2,420 19,292 11,480	1,151 46 70 1,438 855	18,268 428 8,574 18,427 19,269	2,089 1,767 258 1,396 1,847	8,870 1,181 767 8,577 2,849	98 28 36 29	180 20 190 519 1,076
Coffee	29,288 2,876 74,459 14,913 2,148	2,287 844 4,294 6,824 287	12,692 5,579 81,185 7,861 18,574	2,557 5,610 5,339 1,677 1,561	2,985 1,956 6,744 1,027 3,854	188 5 245 65 7	398 194 1,660 41 442
Dickinson	14,618 108,046 48,514 52,381 16,784	1,558 6,414 6,978 1,286 1,216	18,834 27,143 22,720 12,529 8,388	1,855 8,649 2,078 4,087 1,949	3,651 4,295 3,142 3,509 2,376	20 22 14 9 22 109	1,329 182 111 696 285
Ellis Ellsworth Finney. Ford Pranklin	1,478 8,913 2,504 2,485 86,131	133 698 176 365 3,028	2,678 13,338 8,951 7,376 18,504	2,201 1,419 2,104 1,076 2,093	2,068 2,838 1,447 1,928 3,261	2 29 6 119	180 428 111 429 215
Geary	26,325 2,407 4,881 187 300	950 452 414 15 81	4,731 9,305 16,611 1,355 1,627	1,002 6,697 2,029 1,141 816	1,807 1,794 8,462 814 418	9 15 198	521 486 1,180 83 59
GreeleyGreenwoodHamiltonHarperHarvey	28,818 635 22,997 18,464	15 2,218 53 3,007 2,618	192 14,486 1,085 23,308 11,473	375 2,474 558 4,436 1,796	443 8,649 300 6,653 2,980	181 267 229	10 426 55 2,015 1,891
Haskell	7 773 26,992 55,004 2,109	127 1,789 4,468 700	3,536 24,653 26,711 5,511	76 1,022 2,424 2,515 2,245	22 1,217 3,503 4,846 7,196	32 62 43 44	218 205 292 1,887
Johnson	16,458 1,376 23,189 2,777 28,581	2,338 151 2,375 456 5,412	14,550 5,358 20,526 8,619 14,829	2,622 2,183 2,067 1,410 4,299	3,454 670 8,989 2,248 5,173	159 5 136 14 887	111 260 2,394 678 325
LaneLeavenworthLincolnLinn	4,795 55,956 12,781 166,702	256 5,185 856 2,746	4,218 20,730 18,836 11,998	2,466 2,098 1,736 2,272	1,607 3,497 2,912 8,529	8 100 69 126	101 139 1,176 229
Logan	845 80,411 16,097 20,596	110 4,707 2,069 1,082	1,016 12,881 11,512 34,439	636 1,121 1,740 1,809	1,228 2,596 5,345 8,260	115 29 88	817 240 8,107 248
McPherson	18,740 1,769 82,812 7,285	1,402 172 8,457 725	12,400 5,211 16,600 12,225	1,871 1,081 2,754 879	8,214 1,510 4,668 2,118	168 2 146 31	2,987 216 206 1,368

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NUMBER OF FRUIT-TREES NOT OF BEARING AGE - CONCLUDED.

Counties.	Apple.	Pear.	Peach.	Plum.	Cherry.	Quince.	Apricot.
Montgomery	20,440	4,581	40,446	4,022	4,077	229	495
	18,736	784	7,868	728	1,848	52	489
Nemaha	25,027	1,446	23,528	2,183	8,902	11	390
Neosho	20,464	2,668	11,346	2,124	2,516	96	138
Ness	4,151	301	8,482	8,165	8,045	9	1,874
	3,438	376	16,685	1,043	3,751	18	1,676
	28,208	2,507	10,936	1,546	2,997	151	1,097
	11,240	1,067	26,875	1,149	3,184	17	1,449
	11,591	706	22,098	837	2,105	8	571
Pawnee	6,522	1,837	12,014	2,626	3,659	97	739
	9,865	496	35,025	2,164	5,695	26	2,802
	16,272	1,272	12,612	1,157	2,383	18	423
	10,568	1,042	28,655	3,232	6,561	57	1,764
	1,975	208	1,212	638	2,401	9	408
Reno	91,879	4,522	69,178	4,660	10,832	303	3,450
	17,524	906	24,256	1,378	8,188	11	628
	13,911	799	17,940	1,417	2,774	24	501
	19,536	1,364	11,046	1,311	2,533	28	245
	10,684	761	25,628	3,130	5,834	36	833
Rush	8,327	665	4,731	1,991	2,745	12	584
	4,713	428	8,412	760	2,032	32	281
	11,539	673	13,898	1,208	1,802	18	456
	620	79	2,546	1,847	1,875	2	329
	104,373	6,372	57,148	5,910	11,208	251	2,964
SewardShawneeSheridanSherimanSherimanSherimanShith	45 56,518 2,007 446 11,630	3,535 681 28 524	344 25,499 6,350 489 64,084	1,038 2,429 1,502 1,271 2,222	39 4,362 2,538 384 6,322	41 4 14	68 165 6 2,743
Stafford	20,621 96	2,612 14	25,620 857	3,494 600	6,082 356	24	1,074 54
SumnerThomas	72,454 569	3,401 88	26,838 1,503	3,175 2,202	7,112 1,283	398	1,579 149
Trego	3,088	352	4,852	8,184	1,942	48	721
	29,671	1,972	12,953	1,450	3,250	1	840
	413	27	720	8,082	481	1	103
	26,107	1,787	33,658	1,857	4,264	133	450
Wichita	278	37	687	722	394	9	11
	15,830	1,612	8,382	1,849	2,041	134	134
	12,411	1,390	5,018	1,550	1,911	107	153
	70,567	9,211	44.030	7,065	17,801	278	78

^{*} No report.

Horticultural Statistics.

AREA (1905) AND PRODUCT (1904) OF SMALL FRUITS.

AREA (1900)	94	berries.	Raspberries, Blackberries, G				Goorel	perries.
COUNTIES.	Straw	Derries.	naspo		Diack		Groose	
	Acres.	Crates.	Acres.	Crates.	Acres.	Crates.	Acres.	Crates.
THE STATE	8,852	221,162	2,008	60,761	6,098	186,245	786	11,610
Allen	88 28 140 1 2	3,258 253 10,283 200 2	8 27 40 2 8	575 320 1,859	102 112 68 9 6	2,696 711 5,046 1,495	3 14 102 2	227 150 79 122 1
Bourbon	57 67 28 4 111	1,181 2,550 1,982 60 1,586	20 7 17 1 2	476 5,389 129 43 229	42 49 149 2 438	1,106 1,607 814 124 1,248	10 10 7 1	54 420 443 128 109
Cherokee	361 102 2 15	12,526 150 408 112	15 5 8	423 38 11	133 	4,250 10 67 41	10 1 8 1	278 149 11 49
Coffey	100 155 2	2,551 1,742 606 15	21 88 64	782 8 890 384	122 3 242 38	8,080 4,484 894 1	10 1 14 47 8	878 2 186 59 61
Dickinson	18 412 127 11 18	888 18,665 4,722 28 267	18 430 86 1 5	48 11,510 2,277 5 76	10 401 94 1 62	344 28,982 2,579 7 778	1 4 11 1 8	30 282 586
Ellis EllsworthFinney FordFranklin.	2 4 8 2 42	946 172 2 1,528	3 5 88	2 83 45 249	10 17 24 108	7 20 25 2,122	1 2 2 2 18	2 2 5 154
GearyGoveGrahamGrant*	6 2 2	818 49 44	2	68 18 211	1 1	141 23 25	2 8 3	61 38 50
Gray				4		16	2	7
Greeley Greenwood Hamilton Harper Harvey	82 8 7	1,603	5	572 1	107	4,563 97	1 4 8	185 512 182
Haskell	57 81	191	20	199	24	365	4	135
Hodgeman. Jackson. Jefferson. Jewell.	118 86 1	8,960 7,614 98	57 25	877 1,750 20	22 80	2,034 8,965 4	15 6 2	30 154 829 148
Johnson	58 8 1	4,287 8 8	36 4	1,464 5 40	104 1 278	2,627 2,096	21 1	492 17 128
Labette Lane Leavenworth Lincoln	133 1 149 2	9,904 25 14,899 75	20 2 82 1	685 30 4,949 57	281 107	8,229 18,823 25	10 1 14 2	257 35 638 45
Linn Logan Lyon. Marion.	82 817	4,281 4 6,495 1,890	11 22 19	479 782 48	85 83	4,879 1,285 71	9 7 5	92 21 8,143 103
Marshall	17	1,080 1,452	5 6	258 30 653	13 15 138	516 275 	5 4 5	487 58

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AREA AND PRODUCT OF SMALL FRUITS - CONCLUDED.

COUNTIES.	Strav	vberries.	Raspl	perries.	Black	berries.	Goose	berries.
	Acres.	Crates.	Acres.	Crates.	Aeres.	Crates.	Acres.	Crates.
Mitchell Montgomery Morris Merton*	9 107 16	39 6,138 852	2 -17 83	-448 287	172 5	8,115 947	3 3 2	112 59
Neosho Ness. Norton Osage Osborne.	152 2 2 71 8	9,350 9,350 31 426 3,716 96	17 10 1 54 2	2,131 188 84 644 17	227 266 1	2,818 5,780 2 9 1,820	7 91 2 8 5 2	1,846 61 33 164 139 123
Ottawa Pawnee Phillips Pottawatomie Pratt	82 5 8 119 8	1,678 404 447 411 261	1 2 1 87 1	298 56 43 168 2	23 1 31 8	714 40 80 475 19	1 1 3 3 4	167 8 76 214 80
Rawlins	36 10 8 7	564 260 608 1,828	44 4 2 3	137 221 36 783	187 8 14 4	2,089 208 624 747	1 8 8 1 2	67 90 92 122 64
Rooks	2 1 6 25 1	161 57 205 409 23	1 1 45	25 8 6 27 4	11 11	70 400	5 8 2 1 2	41 1 25 250 45
Sedgwiek	188 2	9,238 117 2	57 1 1	221 844 1 16	70 101 2 1	1,847 8,494	11 8 1 1	194 56 86 40 18
Smith Stafford Stanton Stevens* Sumner	2 8 1 20	288 58 218	5 4 9	40 40 78	1 15 1 270	1,274	8 8	68 16 141
Thomas	4 4 30 39	25 2 825 2,381	2 9 1 16	118 5 680	1 25 19	626 4 3,330	1 4 4 1 85	158 318 327 108
Wichita	62 33 587	75 935 2,415 30,507	1 12 12 287	288 409 14,120	668 67 367	8,534 2,180 24,094	 2 5 69	223 166 3,945

^{*} No report.

Hortioùltural Statistics.

VINEYARDS, VEGETABLE GARDENS, AND VALUE OF FRUIT.

		,			
Counties.	Acres, vine- yards.	Eight- pound baskets of grapes.	Acres, gar- dens.	Sales, 1904.	Value of all fruit, 1904.
THE STATE	6,568	1;184,629	28,987	\$422,526	\$1,985,708
Allen	89	4,638	258	\$6,554	\$10,789
	119	-12,563	288	785	3,174
	204	45,848	302	12,048	27,554
	58	8,394	159	3,988	6,153
	17	1,559	161	1,448	4,899
Bourbon Brown Butler. Chase Chantauqua.	48	4,529	132	4,086	4,415
	54	4,486	211	2,790	23,410
	161	17,315	544	2,570	88,480
	88	8,170	209	598	12,415
	53	7,201	363	4,796	18,398
Cherokee. Cheyenne Clark Glay Cloud	80	11,086	861	23,677	80,641
	8	70	·81	548	1,867
	24	18	·46	1,046	462
	99	15,677	821	3,200	29,244
	52	18,789	843	1,926	21,660
Coffey	101 5 814 75 1	14,488 968 16,487 4,717	409 74 997 128 147	747 1,055 8,724 3,845 1,534	17,782 3,819 60,163 13,258 4,479
Dickinson	112	8,596	298	2,548	30,049
	870	182,949	191	8,817	102,410
	143	6,628	667	8,129	21,640
	14	294	67	2,201	1,666
	188	8,842	272	1,244	19,848
Ellis Ellsworth. Finney Ford Franklin.	85	120	236	2,255	1,005
	19	2,113	402	8,246	1,705
	9	2,135	79	3,300	14,658
	6	173	103	989	267
	75	4,518	212	1,743	13,125
GearyGoveGrahamGrant	108 8 88 4	22,948 200 1,041	197 98 85 13 13	1,205 1,004 2,086 55 155	17,173 2,034 2,592 160 101
Greeley	94 62 101	20,128 5,572 10,462	8 561 37 842 491	296 2,033 345 7,429 5,655	99 31,487 13,952 33,338
Haskeli* Hodgeman. Jackson. Jefferson. Jewell	2	30	52	45	1,585
	234	22,746	241	428	33,445
	167	19,237	326	748	39,278
	23	331	606	1,866	39,903
Johnson Kearny. Kingman. Kiowa Labette.	71	8,388	109	5,555	8,303
	4	343	22	299	7,672
	64	8,290	869	1,928	17,861
	6	179	68	1,191	1,765
	116	5,282	562	5,974	32,019
Lane	10	1,662	81	1,314	1,945
	131	18,491	325	9,197	29,533
	29	2,841	47	1,293	16,215
	52	5,108	856	2,206	12,208
Logan. Lyon. Marion. Marshall	158 161 117	50 12,677 18,409 15,837	32 389 389 716	984 580 7,384 1,685	887 19,393 16,524 49,151
McPherson Meade Miami Mitchell	88	10,335	566	1,564	41,082
	11	56	69	999	890
	67	4,448	355	1,867	19,809
	15	965	319	2,128	13,141

VINEYARDS, VEGETABLE GARDENS, AND VALUE OF FRUIT-CONCLUDED.

Countins.	Acres, vine- yards.	Eight- pound baskets of grapes.	Acres, gar- dens.	Sales, 1904.	Value of all fruit, 1904.
Montgomery	105 27	9,755 16,953	758	14,972	\$34,182 20,425
Morton*	174 52	41,674 8,482	489 212	12,660 5,280	44,541 23,806
Ness	4 6 181 9 112	100 186 23,636 133 5,846	194 148 240 439 256	1,588 1,309 2,326 1,738 1,007	1,456 7,195 18,888 16,297 22,751
Pawnee	15 14 129 63 20	1,947 982 18,287 8,157 5	151 405 292 162 51	3,809 4,902 1,121 1,283 2,049	5,535 26,651 24,602 4,140 1,520
Reno	273 44 49 89 23	50,608 7,867 9,650 13,333 328	621 285 267 407 200	9,717 1,183 1,568 13,204 1,878	153,207 53,556 38,583 28,705 18,058
Rush	5 69 180 1 833	79 876 6,696 35 40,747	140 132 432 85 1,251	751 1,536 8,302 1,555 30,345	877 5,721 29,343 463 63,526
Seward Shawnee Sheridan Sherman Smith	281 2 11 15	55,564 285	927 78 84 271	20 86,137 1,206 2,100 2,195	44,143 918 237 35,931
Stafford. **santon Stevens** Summer Thomas.	81 1 251	25,670 21,166	818 9 555 9	712 188 15,581 6	9,130 62 28,408 263
Trego	150 4 128	11,908 50 16,455	87 230 26 368	617 561 1,507 2,247	1,353 18,081 1,252 36,741
Wichita. Wilson. Woodson. Wyandoste.	91 80 41 476	15 4,810 7,896 226,782	16 254 467 907	75 4,679 1,919 59,672	11,057 10,312 68,665

^{*} No report.

RANK IN BEARING FRUIT-TREES AND AREA OF BERRIES, 1905.

COUNTIES.	Apples.	Pears	Peaches	Plums	Cherries	Quinces	Apricots	Strawberries	Raspberries.	Blackberries	Gooseberries	Grapes
Allen Anderson Atchison Barber Barton	40 42 20 62 60	88 42 15 65 52	68 63 50 54 51	59 58 69 88 68	77 69 47 67 19	28 84 50 52 71	74 70 89 23 30	35 38 8 51 50	37 15 11 61 36	22 17 28 51 53	43 9 1 65 87	38 23 9 49 68
Bourbon. Brown. Butler. Chase. Chantauqua	49 29 14 58 48	80 89 19 57 41	70 44 19 69 64	45 18 21 79 16	80 85 81 76 60	29 54 30 61 36	95 64 13 45 59	26 21 37 48 14	20 88 24 68 58	82 81 12 60 2	14 16 24 88 64	56 50 14 60 51
Cherokee	8 94 89 47 50	55 92 91 50 58	67 100 98 28 18	15 85 100 62 79	64 91 96 29 18	8 91 57 65	88 99 86 81 12	3 16 50 43 46	28 90 42 48	15 91 65 52 56	17 81 89 41 67	40 90 63 82 53
Coffey Comanche Cowley Crawford Decatur.	19 78 11 28 78	29 81 5 87 71	46 81 11 75 60	35 98 3 32 66	61 85 11 75 32	18 81 4 17 92	55 67 14 92 56	22 17 5 51	18 68 12 6 82	16 59 9 33 85	15 80 11 4 58	30 82 4 41 94
Dickinson Doniphan Douglas Rdwards Elk	30 4 25 72 23	17 4 8 61 82	10 20 28 58 58	88 14 26 19 13	16 41 27 58 54	18 38 6 85 22	6 58 49 39 60	41 12 10 44 40	27 1 4 78 42	50 3 23 70 30	78 40 12 82 52	27 1 18 72 19
Ellie. Ellsworth Finney. Ford. Franklin	75 68 68 76 81	89 66 75 76 27	87 57 86 66 48	42 89 47 76 69	78 59 81 52 21	59 68 74 82 21	66 38 87 84 72	50 49 50 50 50	81 42 43 75 8	49 42 91 38 21	75 86 55 54 7	59 67 77 79 42
Goary	54 86 77 103 92	62 78 85 104 90	73 77 55 92 89	88 8 84 96 97	78 79 64 99 93	66 73 86	63 77 88 94 83	47 51 50	51 77 46 85	62 79 66	66 42 50 62	28 78 36 98 86
Greeley	102 15 87 51 38	102 20 84 44 14	108 42 96 40 45	102 9 94 40 83	100 49 95 33 30	15 41 11	101 48 100 19 5	29 49 47 27	44 49 19	19 48 89	77 35 48 87	99 33 48 31
Haskell Hodgeman Jackson Jefferson Jawall Howard Hosel	101 90 16 10 38	101 88 28 9 59	101 83 22 17	104 86 25 37 17	101 87 22 23 2	62 45 25 53	103 42 43 52 4	19 13 17 51	88 7 44 79	92 88 41 25 75	88 59 8 26 63	100 98 7 13 64
Johnson	44 70 56 82	22 93 53 80	27 84 35 65	51 44 41 90	39 90 37 83	38 76 82 72	84 54 20 61	25 45	13 86 50 81	20 67 6 76	25 90 6 79	48 88 46 81
Labette	18 80 1 61	82 11 64	56 85 34 26	6 22 46 81	56 84 53 40	83 10 67	69 96 65 17	12 7 51	21 54 5 69	5 89 18 69	50 51 10 60	25 75 20 61
LinnLogan	46 85 5 35	25 80 7 10	52 90 32 41	20 92 29 61	50 92 42 25	20 81 9 28	78 76 32 2	82 18 4	31 90 17 22	24 34 35	19 85 23 27	52 91 16 15
Marshall	21 29 83 84	47 18 88 21	9 38 80 49	48 50 91 49	17 7 74 57	40 24 81	37 1 71 80	37 42 33	40 39 84 23	46 44 77 18	28 33 84 29	24 86 74 45

RANK IN BEARING FRUIT-TREES AND AREA OF BERRIES -- CONCLUDED.

Counting.	Apples	Pears	Peaches	Plums	Cherries	Quinoes	Apricota	Strawberries.	Raspberries	Blackberries.	Gooseberries.	Grapes
Mitchell. Montgomery	59 41 26 99 12	68 24 85 102 28	25 62 24 104 12	87 4 77 101 36	84 68 55 104 8	70 12 44 35	11 57 28 102 35	45 15 42 28	57 26 14 25	62 11 54 10	38 47 57	71 29 62
Neosho	37 82 71 6 81	40 79 77 16 56	61 76 29 38 8	12 5 71 64 78	71 68 20 26 28	16 77 78 5 45	82 7 15 41 26	6 50 50 20 50	88 87 67 8 59	8 68 80 26 68	2 57 49 32 64	54 87 80 10 76
Ottswa Pawnee Phillips Pottawatomie Pratt	58 65 64 36 66	60 54 70 48 67	81 74 7 39 87	72 30 60 74 28	24 45 13 43 38	42 36 26 58 64	25 50 21 62 24	19 48 50 11 50	62 55 64 4 66	40 85 64 86 57	71 72 48 44 89	26 70 78 21 47
Bawlins	84 2 17 45 32	97 2 45 26 49	98 3 4 30 43	108 1 52 79 82	86 3 15 12 51	47 7 56 39 63	75 3 18 16 47	50 83 44 50 47	85 10 47 56 58	14 58 45 55	74 21 49 77 58	77 5 79 80 85
Books Bush Russell Saline Scott	67 74 69 52 91	74 69 72 46 98	18 82 59 86 88	57 54 93 55 56	36 48 62 46 82	89 79 60 51	44 40 46 27 78	50 47 88	65 80 76 9 78	82 87 72 27 81	31 51 68 70 56	82 84 44 11 96
Sedgwick Seward. Shawnee Sheridan Sherman	9 97 7 79 98	6 99 13 63	94 15 78 102	7 78 27 53 65	14 102 9 66 97	8 90 27 84 49	8 81 51 79 98	28 9 51	82 88 7 79 72	48 86 28 61 73	13 91 20 73 6 8	8 92 75
SmithStaffordStantonStevensStevensStevensSummer	55 57 100 29	78 88 100 12	21 99 16	81 11 95	6 4 108 	48 69 87	9 22 98 10	50 50 	41 45 84	71 47 68	22 45 92 39	89 95
Thomas	96 88 22 98 8	91 87 81 96 84	91 79 47 97 6	67 10 75 84 23	89 88 44 98 10	94 80 43 98 55	90 53 36 91 29	49 48 86	89 60 85 71 27	84 74 87 78 41	66 86 84 76 5	68 86 84 76 5
Wichita. Wilson Woodson. Wyandotte.	95 39 48 18	95 48 86 1	95 71 72 5	99 39 43 2	94 72 70 1	75 19 14 1	97 85 68 85	24 84 1	74 80 81 2	90 1 29 4	91 61 30 8	91 61 80 8

FRUIT-TREES AND SMALL FRUITS.

Counties having more than 100,000 apple trees in bearing:

Leavenworth. 324,050 Reno. 285,744 Cherokee 282,924 Douiphan 249,905 Lyon 198,917 Osage 198,579 Shawnee 186,960 Washington 180,783 Sedgwick 177,697 Jefferson 175,568 Cowley 172,020 Leave 120,724	Jackson. Republic. Wyandotte. Coffey. Atchison Marshall Wabaunsee. Elk. Douglas. Morris. Crawford.	136,415 182,774 129,686 128,089 125,228 110,909 110,218 108,119 106,541 105,545
	Morris.	106,541 105,545 105,228 102,561

Total in state: Bearing, 6,896,082; not bearing, 2,072,081.

Counties having more than 1000 pear trees in bearing:

9	-	•	
Wyandotte		Franklin	8,548
Reno		Jackson	3,487
Douglas		Coffey	8,435
Doniphan		Bourbon	8,162
Cowley.	8,158	Wabaunsee	8,141
Sedgwick		E1k	8,110
Lyon	7,665	Stafford	2,970
Labette		Washington	2,964
Jefferson	7,188	Morris	2,885
Marion		Crawford	2,886
Leavenworth		Allen	2,742
Sumner		Neosho	2,572
Shawnee	5,598	Chautaugua	2,554
Harvey	5,157	Anderson	2,322
Atchison	5,111	Prats	2,294
Osage	4,880	Harper	2,292
Dickinson	4,837	Republic	2,252
McPherson		Saline	2.226
Butler		Marshall	2.178
Green wood	4.085	Clay.	2.043
Miami	8,987	Jewell	1.778
Johnson		Kingman	1.729
Nemaha	3.676	Pawnee	1.583
Linn		Osborne	1.284
Rice	3.568	Ottawa	1.158
			-,

Total in state: Bearing, 286,751; not bearing, 168,378.

Counties having more than 50,000 bearing-size peach trees:

Jewell	293.922	Butler	76.672
Smith	253,880	Morris.	76.065
Reno		Doniphan	74.848
Republic	129,688	Stafford	78.422
Wyandotte	129,037	Jackson	71.576
Washington	112,549	Clay	70.228
Phillips	106,771	Mitchell	61.337
Osborne		Lincoln	61.231
Marshall		Johnson	59.858
Dickinson	93,047	Douglas	59,810
Cowley	91,104	Norton	59,054
Nemaha	89,869	Rice	58,204
Cloud		Ottawa	57,920
Sedgwick	83,870	Lyon	
Shawnee		Osage	54,048
Sumner		Leavenworth	53,474
Jefferson		Kingman	52,567
Books	78,316	Saline	51,814

Total in state: Bearing, 4,695,496; not bearing, 1,145,924.

Counties having more than 5000 plum trees of bearing age:

Reno	21,779	Crawford	7.961
Wyandotte	20,754	Harvey	7.830
Cowley	16,736	Coffey	7.690
Ness.	15,847	Nemaha.	7,617
Labette	15.336	Jefferson	7.353
Gove	14,776	Dickinson	7.810
Greenwood	14.476	Harper	7.205
Trego.	13,163	Kingman	6.848
Stafford	12,872	Kearny	6.633
Neosho	12.541	Bourbon	6.533
Rik	12.445	Leavenworth	6.494
Doniphan	12.167	Finney	6.324
Cherokee	11.784	Marshall	6,236
Chautauqua	11.178	Miami	6,226
Jewell.	10.842	McPherson,	6,134
Edwards	9.963	Johnson.	6.071
Linn	9,909	Rush	5.966
	9,867	Republic	5,894
Butler	9.421	Sheridan	
Lane	9.419		5,791
Washington		Saline.	5,592
Summer	8,880	Scott	5,578
Jackson	8.802	Rooks	5,504
Douglas	8,741	Anderson	5,498
Shawnee	8,784	Allen	5,441
Pratt	8,664	Marion	5,361
Lyon	8,278	Clay	5,221
Pawnee	8,208	Barton	5,195
Smith	7,989	Osage	5,057

. Total in state: Bearing, 902,898; not bearing, 219,302.

Counties having more than 10,000 cherry trees in bearing:

Wyandotte		Sedgwick	18,796 12,976
Reno		Franklin	12,769
Stafford		McPhersonCloud	12,172
Sumner		Barton	
Nemaha	15,871	Norton	11,394
Norton.		Jackson	
Shawnee		Jefferson	10,000
Cowley	14,950	Ottawa	10.277
Rice Phillins	14,782	Marshall	
Phillips	16.405	1 /2 / C / C / C / C / C / C / C / C / C	144 I DEL

Total in state; Bearing, 760,095, not bearing, 330,069.

Counties having more than 100 quince trees in bearing:

•	-		
Wyandotte	952	E k	
Labette		Allen	•
Sedgwick		McPherson	
Cowley		Jefferson	
Osage		Phillips	
Douglas		Shawnee	- 3
Reno		Bourbon	
Cherokee		Marion	
		Butler	
Lyon			
Leavenworth		Miami	
Harvey	295	Kingman	-
Dickinson	288	Johnson	
Coffey	255	Anderson	- 1
Greenwood	238	Nemaha	1
Neosho	287	Chautauqua	
Crawford		Pawnee	
Linn		Sumner	
Franklin	106	Doniphan	
LIGHTIM	1900	Dombran	

Total in state: Bearing, 11,688; not bearing, 7173.

Counties having more than 1000 apricot trees: McPherson 13,656 Marion 10,996 Beno 10,815 Jewell 8,502 8,502 7,212 Ottawa Osborne Saline Harvey Harvey. Dickinson Ness Sedgwick Smith Sumner. Mitchell Cloud Butler Cowley 248 Morris. Washington Barton Barton 1,614 Clay 1,561 Lyon 1,885 Ford 1,292 Nemaha 1,176 Wabaunsee 1,175 Marshall 1,178 Ellsworth 1,148 Edwards 1,112 Rush 1,004 4,520 3,810 3,358 3,282 3,000 3,032 Harper.... 3,014 Osage 1,057 Total in state: Bearing, 169,561; not bearing, 67,143. Counties having more than fifty acres of grapes: Ottawa. 112 Dickinson. 111 Geary. 108 Coffey. 101 Harvey. 101 Clay. 99 Greenwood. 94 Wightita. 94 Greenwood. Wichita Riley Lane Allen Stafford.... Cherokee.....Crawford Jefferson...... 166 Johnson..... Kingman..... Barber Chautauqua Linn Cloud Anderson. 119 Marshall 117 Labette 115 Cloud Neosho.... Total in state, 6568 acres. Counties having more than ten acres of strawberries: Bourbon Harvey Sedgwick Franklin Wyandotte...... 581 Doniphan 412 Cherokee 361 Washington Linn Reno Miami Allen Greenwood Labette 183 Douglas 126 Pottawatomie 118 Wabaunsee Butler Marshall Jackson 112 Chautauqua 111 Cheyenne 101 Cowley Jefferson Lyon Ottawa Dickinson. Lyon Ottawa. Haskell Osage. Coffey. Nemaha. Johnson. 81 81 70 McPherson. Morris.

Clay. Edwards

Total in state, 3852 acres.

Counties having more than ten acres of raspberries:

Counties naving more than ten acre	ss of raspoernes:
Doniphan 460 Wyandotte 287 Franklin 85 Pottawatomie 96 Douglas 86 Leavenworth 82 Johnson 67 Crawford 68 Shawnee 57 Jackson 57 Jackson 57 Saliue 44 Reno 43 Atchison 39 Cowley 37 Morris 32 Anderson 27 Total in state, 2008 acres.	Jefferson
Counties having more than twenty Wilson	acres of blackberries: Allen
Counties containing five or more action 101 Atchison 101 Neosho 90 Wyandotte 69 Crawford 47 Washington 34 Kingman 20 Franklin 18 Jackson 15 Anderson 14 Leavenworth 13 Cowley 13 Douglas 11 Sedgwick 10 Bonrbon 10 Coffey 9	Brown 9 Cherokee 9 Labette 9 Shawnee 8 Linn 8 Beno 8 Smith 7 Lyon 7 Butler 7 Nemaha 7 Marion 5 Marshall 5 Miami 5 Woodson 5

Total in state, 736 acres.

SUMMARY OF HORTICULTURAL STATISTICS FOR 1904.

Fruit-Trees.		In bearing.	Not in bearing.
Apple Pear Peach Plum Cherry Quince. Apricot		6,896,082 256,751 4,695,496 902,898 760,095 11,685 169,561	2,072,08 168,37 1,145,92 219,80 330,06 7,17 67,14
TotalsNot in bearing		13,692,568 4,010,070	4,010,070
Grand total	<u></u>	17,702,633	•
Strawberries	Apples	2,668,572 53,507 692,226 42,296 85,497 3,548,408	
SMALL FRUITS (crates). Strawberries Raspberries Blackberries Gooseberries Total			
Total value of fruit		•••••••	\$1,935,700 422,520
Total value of horticultural products			\$2,368,22

Kansas State Horticultural Society.

FORESTRY STATISTICS, 1905.

								=
	Street trees.	Wild timber.		Cı	altivate	1.		Rank :
Counties.	Number.	Acres.	Number of acres of walnut	Number of acres of locust	Number of acres of cottonwood	Number of acres of catalpa	Number of acres, other varieties	Rank in cultivated- tree area
THE STATE	559,288	386,007	9,729	40,661	28,811	18,532	77,810	
Allen	2,978 5,898 150 8,740 5,492	1,438 5,171 6,705 5,581 618	42 178 21 222 54	3,087 828	18 1 8 802 396	81 118 49 46	174 732 218 807 258	72 46 78 8 8
Beurbon Brown Butler. Chase Chautauqua.	5,087 8,173 8,982 82 1,855	18 4,112 11,365 4,818 13,562	18 128 49 41 175	32 28 4 1	211 78 24 36	1,082 49 8 18	404 218 1,016 40 194	68 29 2 85 62
Cherokee	11,635 1,064 209 9,153 4,895	9,862 40 998 8,886 3,196	77 7 98 91	10 94 16 4	48 52 246 194	87 42 80	405 88 32 864 1,406	60 83 79 40 24
Coffey Comanche Cowley Crawford Decatur	7,821 820 7,627 1,669 6,841	4,399 1,468 8,265 2,901 1,233	68 31 69 6 254	2,897 39 403	34 336 229 63	41 58 88 402	1,505 598 545 141 665	25 11 49 59 35
Dickinson	4,488 617 14,653 115 7,078	2,966 12,495 11,160 187 7,586	729 49 900 37 67	30 11 7 322	596 46 2 567 18	859 3 2 24 25	2,832 857 555 368 207	9 61 34 38 68
Ellis Ellsworth Finney Ford Franklin	817 20,727 8,579 10,950 4,209	1,042 2,788 12 177 6,514	24 42 8 2 12	1,145 5,438 27 2,901 2	42 53 119 381 7	885 2	170 419 26 4,194 240	36 7 78 4 72
Geary Gove Graham. Grant*	2,508 1,480 38	7,780 7 607	79 1 21	16 268 513	10 46 107	1	118 50 130	74 65 52 96
Greeley	1,725 1,100 20,257	18,207 1,150 458	50 826 54	418 8 606	115 80 614	287 116	256 227	57 50
HarveyHaskellHodgemanJackson		816 81 6,777	98 57 16	44 26 928 8	910 1 8	75 8 50 7	492 50 105	27 95 45 86
Jefferson	5,664 7,074 12 18,250	19,113 7,288 1,496 72	27 13 27 9	12 8 84	10 126 3 120	501 21 4 8	140 1,464 568 39	54 26 56 76
Kingman Kiowa Labette Lane	2,891 700 1,192 140	80 505 8,779 74	80 7 475	4,155 27 10 8	4,815 44 44 49	1,063 7 57 2	5,366 76 599 91	80 43 84
LeavenworthLincolnLinnLogan	485 2,859 13,336	18,566 1,697 5,744 7	110 224 16	51 294 21 13	1,881	83 142	3,755 1,078 133 69	10 12 69 90

FORESTRY STATISTICS, 1905 - CONCLUDED.

	Street trees.	Wild timber.		c	ultivate	d.		Rank
Counties.	Number.	Acres.	Number of acres of walnut	Number of acres of locust	Number of acres of coston wood	Number of acres of catalpa	Number of acres, other varieties	Rank in cultivated- tree area
Lyon Marion Marshall McPherson. Meade	27,007 10,274 4,142 12,912	6,988 862 11,581 2,343	30 278 98 518 9	6 146 12 22 131	12 1,533 119 662 174	8,681 52 67 8	219 9,021 1,714 1,757 104	71 2 22 15 64
Miami. Mitchell . Montgomery . Morris. Morris.	1,298 4,675 5,898	2,049 2,758 5,683 8,621	32 130 45 5	2 84 3 10	2 89 1 10 10	11 9 21 8	24 706 86 42 10	71 47 81 92 97
Nemaha	2,985 5,584 15,885 1,916 706	18,239 4,675 835 1,028 5,878	280 656 62 89 62	8 11 224 194 3	1,162 118 84 821 7	78 986 	847 4,489 264 666 582	20 6 55 89 53
Osborne Ottawa Pawnee Phillipe Pottawatomie	12,948 7,774 17,445 220 2,468	3,880 3,682 351 3,862 10,754	92 96 12 62 49	127 28 52 539 5	88 1,211 281 48 84	28 85 22 18 89	848 839 608 1,141 1,392	58 21 49 23 32
Pratt	12,964 410 20,616 12,246 31,468	574 2,129 401 4,963 497	81 141 209 26 280	853 9 280 12 109	212 68 8,419 418 721	166 1,569 32 105	486 140 2,198 8,020 1,555	41 66 5 13 17
Riley	5,495 898 1,860 7,197	9,610 2,507 876 1,997 2,992	51 48 28 16 147	1,989 928 84 83	37 223 80 659 835	5 11 58 10	260 738 264 228 649	65 16 37 48 44
Scott. Sedgwick Seward. Shawnee Sheridan	200 9,607 205 4,574 1,557	2,449 1,162 3,767 245	127 4 287 7	18 287 94 	1,154 4 96	141 1 11 20	1,567 10 52 405	94 14 89 67 51
Sherman Smith Stafford. Stanton Stevens*.	585 24,481 175	27 5,261 63 5	65 126	2 853 168 2	10 164 1,008 8	144	181 999 990 12	87 30 19 98
Sumner Thomas Trego Wabaunsee Wallace	12,656 654 106 2,856 475	2,582 13 886 11,821 2	79 18 21 11	9,014 22 42 17	878 8 62 12 12	777 21	567 95 88 100 10	88 77 82 93
Washington	6,754 1,778 9,559	10,324 4,998 8,014 2,679	71 3 11 179 7	181 2 81	126 14 6 22	70 3 18 81	1,284 58 255 2,322 4	88 76 70 18 99

^{*} No report.

FRUIT GROWN IN 1904.

	Bushels.					
Counties.	Apples.	Pears.	Peaches.	Plums.	Cherries.	
THE STATE	2,663,572	55,592	692,220	42,295	85,491	
Allen. Anderson Atchison Barber Barton	3,547 7,110 13,838 4,387 6,090	238 191 1,586 800 55	1,885 839 8,877 1,596 1,588	138 77 1,102 169 183	58 182 1,314 163 678	
Bourbon	4,484 39,758 67,130 27,155 67,061	440 779 1,178 113 884	1,774 28,067 9,763 943 2,278	59 1,115 227 92 696	2,580 2,580 687 244 254	
Cherokee Cheyenne Clark Clay. Cloud	46,208 258 260 40,408 33,354	268 37 475 245	775 248 121 17,515 13,285	387 88 33 319 327	368 354 28 1,844 1,075	
CoffeyComancheCowley.CrawfordCrawford	31,002 788 118,087 10,409 1,185	454 3 33 3,017 588	2,256 874 7,412 1,469 1,585	144 58 871 409 276	441 106 1,080 172 841	
Dickinson Doniphan Douglas. Edwards Eik.	68,548 13,320 10,194 587 69,220	480 2,228 1,852 12 814	18,264 8,391 5,279 1,684 3,485	383 1,280 556 115 1,157	2,296 1,590 1,835 414 350	
Ellis	1,549 11,780 6,828 62 10,716	3 123 42 2 2 854	198 2,559 1,927 128 4,269	109 95 1,243 27 76	302 1,080 1,407 46 431	
Geary	24,950 84 338	393 5 2	4,221 757 2,496 50 133	153 387 102 60 35	1,043 248 160 25	
Greeley	60,581 805 22,804 86,983	1,116 10 616 1,938	4,881 602 2,442 4,744	19 714 175 417 466	11 708 139 648 742	
Haskell * Hodgeman Jackson Jefferson	47 35,488 46,138	892 1,926	86 14,386 13,031	30 1,258 1,410	27 2,783 2,881	
Jewell. Johnson Kearny. Kingman	42,730 1,378 6,928 25,106	150 843 2 118	45,775 6,798 1,821 1,907	246 509 656 261	8,184 1,672 407 358	
Kiowa Labette Lane Leavenworth	387 53,425 1,819 22,886	10 2,861 63 2,186	1,711 1,748 618 5,090	59 482 178 768	85 681 186 996	
Lincoln Linn Logan Lyon	17,334 18,704 399 81,669	53 . 391 1,376	6,608 2,492 166 4,918	118 224 29 42	492 1,019 168 748	
Marion. Marehall. McPherson Made	42,599 68,094 99,749 227	909 888 908	3,240 40,881 4,660 158	257 624 426 82	2,625 3,874 1,554 117	

FRUIT GROWN IN 1904 - CONCLUDED.

	Bushmis.					
Counties.	Apples.	Pears.	Peaches.	Plums.	Cherries.	
Miami Mitchell Montgomery. Morrie Morton *	8,808 14,582 43,192 29,566	461 711 1,659 453	2,115 6,942 2,225 8,513	197 365 551 304	445 818 858 851	
Nemaha Neosho Ness Norton Osage	49,859 15,278 459 8,061 18,886	888 452 5 2 468	30,776 8,604 315 6,373 8,187	792 654 56 149 200	5,884 143 302 1,277 1,878	
Osborne. Ostawa Pawnee Polilips Pottawatomie. Pottawatomie	18,679 24,292 5,171 17,901 42,770	29 142 112 18 306	10,791 9,089 736 28,651 9,965	158 231 615 769 291	670 1,192 331 1,212 956	
Pratt. Rawlins. Beno	2,244 1,124 278,275 79,149 76,028	30 8 1,149 253 382	995 80 12,271 41,722 4,638	212 42 1,767 726 141	290 97 2,619 2,290 1,000	
Riley. Rooks. Russh. Russell Saline.	44,968 7,155 429 2,882 53,135	487 18 4 29 470	9,235 12,615 246 3,111 5,659	824 420 147 156 449	1,686 586 187 446 2,997	
Scott. Sedgwick. Seward Shawnee Sheridan.	86 118,236 31,111 209	2,982 832 16	179 5,259 2 12,781 246	151 488 1,242 78	970 970 5,533 298	
Sherman. Smith Stafford. Stanton Stevens*	82 36,644 10,047	49 24	56 58,052 2,442 39	48 737 374 15	8,058 218	
Sumner	84,226 4 321 35,367 313	1,758 3 6 814	3,647 44 582 12,661 276	429 13 298 436 242	2,440 120 120 1,778 290	
Washington Wichita. Wilson Woodson Wyandotte	45,969 42 23,030 19,806 4,931	491 535 308 3,666	24,548 69 2,572 1,191 40,187	369 87 228 255 5,291	2,677 408 278 10,418	

^{*} No report.

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REPORT

ON THE CEMETERIES, BURIAL-GROUNDS AND GRAVEYARDS OF THE STATE, WITH A SYNOPSIS OF THE MAIN LAWS GOVERNING THEIR LAYING-OUT, TITLES, REGISTRY, MAINTENANCE, AND CONTROL; WITH AN INCOMPLETE LIST OF SAME, TAKEN BY AUTHORITY OF THE LEGISLATURE OF 1908.

It will naturally be asked, what has the State Horticultural Society to do with cemeteries and burial-places? Landscape-gardening is a very important branch of horticulture, and the citizens of our state are supposed to have a desire that the grounds in which they lay the mortal remains of their loved ones shall be well located, with some natural beauty; and not only guarded against vandalism, but artifically beautified with hedges, trees, shrubs, and plants. The State Horticultural Society should prepare plans for laying out and beautifying such grounds, in single lots, small tracts, and large areas. The Society should be able to designate what trees, shrubs and plants will flourish and give shade and bloom in the different sections of our state under their varying conditions of climate and soil. "To whom shall we go; there is none other?"

If the State Horticultural Society, the county horticultural societies, the civic improvement societies and forestry clubs would take up this work, it would result in more beautiful and regular surroundings and a greater regard for these, to many, almost sacred areas. The laws governing burial-places in our state are many and various; all that is good in them should be gathered and compiled into one new law, with such additions as the state now requires. In many cases the burying-grounds are not platted or recorded, and in time may revert to the stranger.

In other cases neither the register of deeds nor the probate judge can give a list, such as their books should show, of the places in which human remains are interred. Again, under such conditions there must be hundreds of burials that are not recorded by number, name, etc., and which must in time join the great mass of unknown. No human body should be buried in the soil of Kansas without the exact spot is so recorded that future generations can, if need be, find such remains without any doubt and with only a tithe of the expense required to secure the body of that honored hero, Rear Admiral John Paul Jones. Kansas is not yet fifty years old and our incomplete list shows over 1500 burial-places, covering over 7200 acres. If not regulated and systematized, what will the confusion be like in another fifty years?

DEFINITION.

From Appleton's Universal Encyclopedia: CEMETERY (also comitery, cimitery, from Lat. comiterium or cimiterium, acc. to late Gr. pronunciation of koiunt'nptoy, resting-place; deriv. of koluny, lull to sleep).

HISTORICAL.

The ancient Germans interred their dead in consecrated groves; the Egyptians interred them in vast catacombs or pyramids; the Hebrews usually selected for this purpose ornamental gardens, fertile valleys, or grottoes, and they still designate them, with a sad emphasis, as the "house of the living"; the Greeks discouraged interments within their cities and consigned their dead to shaded groves, and called them "places of repose." The Romans erected monuments to the dead on the sides of their spacious roads, in the midst of trees and ornamental walks, placing therein the ashes of their great citizens. The Appian Way was crowded with columns and obelisks in memory of their heroes, and at every turn the short and touching inscription met the eye, Siste, viator (Pause, traveler).

It is probable that the modern idea of a cemetery was derived from the Turks, for Constantinople is almost environed with cypress groves filled with sepulchral stones. The term "cemetery" was applied by the early Christians to their usual places of interment, which were extramural, but after some centuries the desire to lie under the religious sanction of the church led to the transferral of burial-places to consecrated grounds and crypts of sacred edifices. "God's acre" was usually the churchyard, and these places rapidly became populous with the dead.

One of the earliest of modern cemeteries is that of Pere la Chaise, in Paris, laid out in 1804, and at that time beyond the walls. It was named for the confessor of Louis XIV, and contained 200 acres. The earliest in the United States is Mount Auburn, near Boston, where, at the instigation of Dr. Jacob Biglow, a park of 625 acres was opened for burial uses in 1831. Soon after, Laurel Hill was established on the Schuylkill river above Philadelphia. Greenwood followed in 1838, and was long a place of sepulture for New York, although it lay on the south of Brooklyn, Long Island, where it commanded a view of the sea.

In 1843 Chadwick, in a parliamentary report, arraigned the unhealthfulness of interments in churches and cities, and from that time the substitution for them of extramural burial-grounds has gone on with rapidity, until every considerable town in Great Britain and America is provided with them.

In France every city and town is required to provide burial-grounds beyond its barriers, on rising ground if possible, and keep them in ornamental cultivation. In Paris the practice prevails of burying forty or fifty corpses at a time in the fosses communes; the poor gratuitously, and others at a small charge. When the fosse is filled its surface is leveled, left undisturbed for five years, then covered with four feetfoffearth, when interments begin again. Pit burials are usual in Naples, and in other cities of continental Europe. In 1874 Paris was provided with a cemetery of 1200 acres on the plain of Mery-sur-Oise, sixteen miles north of the city, reached by a special railway line.

Near Liverpool, the St. James cemetery utilizes an old quarry, which is entered by a tunnel. On the face of the escarpment roads are cut leading to the openings of a sort of catacombs excavated in the rock.

IMPROVEMENT.

The dominant motive to the establishment of the modern cemetery was a consideration of public health, but that was speedily seen to be compatible with beautiful grounds and the gratification of the reverent respect civilized men feel for their dead. It was a fortunate thing that the first examples were governed by cultivated men. They inaugurated a taste for fine planting that culminated in a general demand for ornamental grounds.

A rich vegetation exercises a poweful influence in preventing the escape of deleterious miasmata, though this is not to be feared where graves are single and of a depth of seven or eight feet, as they always should be. Trees should neither cover a large space with their branches, nor give so much shade as to prevent the growth of grasses. All the arborvitæ family, the junipers, yews, hollies, a few species of oaks, magnolias, and, in general, the trees of middle size suitable to the climate, meet these requirements.

How to lay out a cemetery is an important topic. It should conform to the character of the ground and be made as cheerful as possible. The socalled landscape plan has no enclosures; the lots are marked by a sunken post at each corner; there is but one monument, in the center, and the interments surround this on all sides. The advantages claimed are a park-like appearance and more open space, with more facility for neat keeping.

Bricked vaults of greater or less size underground are not uncommon, and a more general desire for those above the surface is observable. The latter should never be allowed unless provision is made effectually to seal the crypts in which bodies are deposited.

Granite is much used as a curbing; this suffices for the enclosure, and marks the possession of each family, and is the most enduring; the best burnt bricks for underground structures are also lasting; marble or other veneering gives out and should be avoided, as the introduction of water in the interstices, in freezing, opens them with great force.

The best material for monuments is granite, either the expensive Aberdeen or the American. Italian marbles are not adapted to a cold climate; they inevitably split and crumble, while the American will do the same if not laid in the position of its natural bed.

LANDSCAPE CEMETERIES.

By O. C. SIMONDS, in Bailey's Encyclopedia of Horticulture, page 879.

The cemeteries of the present day have come into existence from a desire to have barials made at a distance from centers of population and among beautiful surroundings. They are often called "rural cemeteries." The first one in the United States to merit this name was Mount Auburn, near Boston, Mass., founded in 1831. Since then the idea of having burial-places park-like in their character has been spreading, until they contain to-day some of the most beautiful landscapes developed by the hand of man.

The wish to have in the cemetery all the beauty of trees, shrubs, lawns and flowers has gradually led to the abolition of fences, coping and other lot enclosures, and a reduction in the number of monuments and the size of headstones. There are many who now believe that the last resting-place should be surrounded by the quietness and beauty of these features of nature's handiwork without distracting stonework or artificial objects.

There are others who say that "the cemetery should be a cemetery," meaning by this expression that it should resemble somewhat closely the old churchyard or graveyard, with its multitude of crowded stones, inscribed with the names and good qualities of all buried within its walls.

All agree that the cemetery should be so situated and maintained as to menace in no way the healthfulness of surrounding neighborhoods. The ideal location is one where the ground is somewhat undulating and thoroughly drained by having a porous subsoil, while the surface soil is sufficiently rich and deep to support a good growth of vegetation. In some instances, as at Forest Hills (Boston, Mass.), and at Woodlawn (New York), it has been necessary to blast and remove rock and then fill in the space with earth. In other cases, the natural soil has been so poor that it has been necessary to cover it with rich earth hauled from a long distance. In still other cases, it has been found necessary to select a clay soil, because there was no other, or to make ground by excavating lakes, using the material excavated to raise the surrounding land, or to bury above ground in structures erected for the purpose, as at New Orleans.

When a site is chosen, it is usually subdivided into sections and lots, which must he made accessible by the construction of drives and walks. The drive should pass within 150 or 200 feet of every place available for burial. The width of the drive should vary according to the size of the cemetery and the probable amount of driving. If the area is very small, say not over four or five acres, it may be unnecessary to have any drive. In a little larger area, a grass drive eight feet wide might suffice; in one still larger, a driveway sixteen feet; and, finally, a cemetery designed to accommodate large populations should have good macadamized roadways twenty-four or thirty-two feet in width. Walks should generally be left in grass which forms part of a continuous lawn, such being better in appearance and more easily maintained than those made of gravel. The location of the drives will determine the shape and size of the sections. The plans should be made after a careful study of the ground in question, the drives being placed so that they will have easy grades, command good views, and be as few as possible without being more than 300 or 400 feet apart. When the ground is irregular in shape, or has steep slopes, or contains streams or lakes or valuable trees, these conditions may make it necessary to construct more drives than would otherwise be desirable. They can generally be staked out on the ground by eye with a better effect than if drawn first in an office by the use of some geometrical curve. They should nearly always be curved, to produce the most pleasing result, a curved driveway being interesting because (1) when the margins are properly planted certain portions of the ground are always hidden; (2) they insure varied effects of light and shade; (3) they make the average distance from the cemetery entrance to the lots shorter than if one follows straight lines and turns right angles.

An open tract, to begin with, is in many ways preferable to one that is thickly wooded, but groups of trees, or single specimens that have broadened out in a natural way, would be very valuable, since they would help to take away the naked, forbidding appearance of land newly planted with young trees. On a vacant area it is usually advisable to plant some large trees for the sake of immediate effect. These can be grouped about the entrance, a fork in the drives, the top of a hill, the margin of a lake, or other distinguishing position. The objection to a piece of land covered with thick

woods is that the necessary thinning to get sufficient open space will leave tall, spindling trees unused to exposure. These, while not very attractive in themselves, are very likely to die and are liable to be blown down. If there are thick woods in the land chosen, the trees selected to remain should be those that are healthiest and have the lowest branches. Some of the trees removed might be cut off at the ground, when the sprouts springing from the stump will form beautiful, bush-like specimens.

The necessary buildings will vary with the size of the cemetery, but they should always be modest in appearance and suitably embellished with shrubbery and vines. The office would naturally be placed near the entrance, to avoid unnecessary walking, but it should not be placed immediately on the highway or public street. The large arch frequently built over the gateway is usually too pretentious in appearance and not in keeping with the character of the grounds. A natural archway of living trees would be better. The chapel, if any, should be built well within the grounds, to give it greater seclusion and quietness. Whether there should be greenhouses or not cannot be discussed here on account of the limits of this article. It may simply be said that with the greater variety of flowering trees and shrubs which we have to choose from, as well as the thousands of hardy, flowering, herbaceous plants, most beautiful effects can be produced without the expense, the continual labor and the bare beds more than half the year which would follow the construction of greenhouses. Usually the selection for planting of material found growing in the adjacent country will help to produce satisfacfactory results with little expenditure of money and time.

To prevent intrusion, a fence along the boundary of the cemetery is necessary; but this can be a simple, inexpensive wire fence, serving in places as a support for vines, and in places being hidden by a belt of trees and shrubbery.

No one would now make the cemetery dreary by confining the planting to spruces and weeping willows. On the contrary, every effort is made to secure cheerful effects by the selection of all kinds of flowering, happylooking plants. The modern cemetery becomes in fact a sort of arboretum. It includes some evergreens, which are most suitably grouped along the boundary belt, and which should contain all kinds of hardy pines, as well as the more stiff and formal spruces. The planting of Norway spruces has in many places been overdone.

The development of attractive landscapes in cemeteries is of so much importance that Mr. Strauch, who was the greatest cemetery designer that we have had, used to call the present method "the landscape-lawn plan."

A good landscape in the cemetery is usually the result of years of growth. It must first be carefully designed, and then receive care and attention from some one familiar and in sympathy with the scheme adopted. To insure such attention and to protect the interest of all lotowners, as well as to maintain the dignity and character of a city of the dead, rules have been adopted by all leading cemeteries. These rules are the result of study and experience on the part of many men. At a meeting of the Association of American Cemetery Superintendents, held at Boston in 1890, the following rules were recommended by a unanimous vote of those in attendance:

"RULE 1. (This should be a general rule stating the authority and conditions on which the lots are sold and the restrictions on transfers. This

rule, of course, would have to be varied according to conditions existing in

each cemetery.)
"RULE 2. The trustees desire to leave the improvements of lots, as far as possible, to the taste of the owners; but, in justice to all, they reserve the right, given them by law, to exclude or remove from any lot any headstone, monument or other structure, tree, plant or other object whatever which may conflict with the regulations, or which they shall consider injurious to the general appearance of the grounds; but no trees growing within any lot shall be removed or trimmed without the consent of the trustees.

"RULE 3. Lotowners may have planting or other work done on their lots at their expense, upon application to the superintendent. No workman other than employees of the cemetery will be admitted to the cemetery except for

the purpose of setting stonework.

RULE 4. No iron or wirework and no seats or vases will be allowed on lots, excepting by permission of the trustees, and when any article made of iron begins to rust, the same shall be removed from the cemetery.

"RULE 5. The trustees desire to encourage the planting of trees and

shrubbery, but, in order to protect the rights of all, and to secure the best general results, they require that such planting shall be done only in accord-

ance with the directions of the superintendent of the cemetery.

"RULE 6. No coping nor any kind of enclosure will be permitted. The boundaries of lots will be marked by corner-stones, which will be set by the cemetery, at the expense of the lotowners, with the centers upon the lines bounding the lot. Corner-stones must not project above the ground, and must not be altered nor removed

"RULE 7. No lots shall be filled above the established grade.

"RULE 8. All interments in lots shall be restricted to the members of the family or relations of the lotowner.

"RULE 9. No disinterment will be allowed without the permission of the

trustees, of the lotowner, and of the next of kin of the deceased.

"RULE 10. Mounds over graves should be kept low, not exceeding four inches in height, and stone or other enclosures around graves will not be

"RULE 11. Foundations for all monuments, headstones, etc., shall be built by the cemetery at the expense of the lotowner, and fifteen days' notice must be given for the building of foundations. The cost of the same must be paid in advance.

'RULE 12. Every foundation must be at least as wide and as long as the base stone resting upon it, and must not project above the surface of the ground. All foundations must extend as low as the bottom of the grave.

"RULE 13. Only one monument will be permitted on a family burial lot. "RULE 14. (This should be a rule limiting the height of headstones, and the lower this limit is made the better; even with the lawn is considered

"RULE 15. All stone and marblework, monuments and headstones must be accepted by the superintendent as being in conformity with the foregoing

rules before being taken into the cemetery.

"Rule 16. No monument, headstone, or coping, and no portion of any vault above ground, shall be constructed of other material than cut stone or

real bronze. No artificial material will be permitted.
"RULE 17. The trustees wish, as far as possible, to discourage the building of vaults, believing, with the best landscape-gardeners of the day, that they are generally injurious to the appearance of the grounds, and, unless constructed with great care, are apt to leak and are liable to rapid decay, and in the course of time become unsightly ruins. Therefore, no vaults will be permitted to be built unless the designs for the same are exceptionally good, and the construction is solid and thorough. The designs must be submitted to the trustees, and will not be approved unless the structure would, in their judgment, be an architectural ornament to the cemetery.

"RULE 18. Material for stone- or marblework will not be allowed to remain in the cemetery longer than shall be strictly necessary, and refuse or other unused material must be removed as soon as the work is completed. In case of neglect, such removal will be made by the cemetery at the expense of the lotowner and contractor, who shall be severally responsible. No material of any kind will be received at the cemetery on Saturdays after twelve o'clock M.

"Rule 19. The trustees shall have the right to make exceptions from the foregoing rules in favor of designs which they consider exceptionally artistic and ornamental, and such exceptions shall not be construed as a

rescission of any rule.

"Rule 20. It shall be the duty and right of the trustees from time to time to lay out and alter such avenues and walks, and to make such rules and regulations for the government of the grounds as they may deem requisite and proper and calculated to secure and promote the general object of the cemetery.

"RULE 21. The superintendent is directed to enforce the above regulations, and to exclude from the cemetery any person wilfully violating the

same.'

Cemeteries should be established upon a basis to enable those in authority to take uniform care of the grounds for all time. The prices charged for lots should be high enough to enable a fund to be set aside that will yield an annual income sufficient to pay all necessary general expenses.

In laying out a new cemetery, those in charge should seek the best advice available. Such advice should be based on a thorough knowledge of landscapegardening and the special needs of burial-grounds. Much information can be obtained by visiting Spring Grove, at Cincinnati, Ohio, generally recognized as the pioneer of park-like cemeteries, and perhaps the best example in the world. Oakwoods cemetery, at Troy, N. Y.; Swan Point cemetery, at Providence, R. I., and Forest Hills, at Boston, Mass., are some of the prominent examples of the system now in vogue. Graceland cemetery, at Chicago, Ill., although much smaller in area than those already mentioned, contains some good landscape effects. There are many other cemeteries in the vicinity of the large cities of the United States which can be commended on account of the good taste displayed in them. There are others, like Mount Auburn, of Boston, Greenwood, of Brooklyn, and Laurel Hill, of Philadelphia, which, while containing many beautiful trees and expensive monuments, include also many fences, railings, copings and hedges that serve as examples of what to avoid rather than to imitate.

Our leading cemeteries should keep pace with the best thought of the time; with the best theories of religion, science, and economics. They should be, as the name implies, sleeping-places—places of rest and freedom from intrusion.

It seems natural that people should select for such a place the very best production of landscape art, a place where spreading lawns give a cheerful warmth and sunlight; where pleasing vistas show distant clouds or the setting sun; where branching trees give grateful shade, furnish pleasing objects to look at, and places for the birds to come each year and sing again their welcome songs; where blossoming shrubs delight the eye, perfume the air, and make attractive resting-places. Such places may seem to exist more for the living than for the dead, but the living are the ones that need them.

If it seems natural to select a most beautiful park, a real picture, we might say, for a sleeping-place, it seems strange to put into this picture obelisk after obelisk, stone posts and slabs of all shapes and sizes, and stone tombs within whose walls their owners hope to have their dead bodies preserved forever. The history of sepulture shows the futility of trying to

preserve one's body or one's name with the help of stone. A man can only hand his name down to posterity by his own work, and, even if his body should be preserved as long as were those of the ancient Egyptians, it might finally be used only to propel a locomotive or a steamboat. These facts should be recognized in the modern cemetery. The ground should assist in changing the body back into organic forms, or to receive the ashes, if the quicker process of cremation is adopted. The scenery should solace those that are bereft.

It is repugnant to our best feelings to use the same land over and over again, as is done in many cities in Europe, and, to some extent, in the United States. A cemetery is frequently spoken of as the "last resting-place," and it serves mankind best when it is so in fact, since in that case, after it has served its purpose of purification, it becomes a park, a breathing-place for the people of the city, whose growth is likely to crowd the vicinity with houses. The memory of past generations will certainly be sweeter if it is associated with trees than if it is connected with tombs, catacombs, and pyramids. The problem presented to cemetery associations is, therefore, how to secure the most pleasing combinations of growing plants, including trees, shrubs, flowers, and grass; the most satisfactory views; the most harmonious and restful park—for the cemetery is really a memorial park.

Those seeking information on this subject will find it in the histories of the various cemeteries and in encyclopedias. The development of the land-scape idea in connection with cemeteries is given in some of the reports of those institutions, that of Spring Grove for the year 1869 being especially valuable. The reports of the Association of American Cemetery Superintendents contain many papers of interest. The volumes of the Modern Cemetery, afterwards the Park and Cemetery, the only periodical devoted to the interests of burial-places, contain articles relating to all phases of the subject. All books relating in any way to landscape-gardening are of value in cemetery work, since they treat of all its natural features.

LIST OF CEMETERIES IN KANSAS.

The following list shows the number of cemeteries in the various counties, together with the name and area of each, so far as ascertained:

ALLEN COUNTY.

Acres.

Location.

No.

Name.

12 Colony.....

NO.	Name.	ACTES.	Dogs	
1	Harmony	. 6	Township	not given.
2	Elsmore	. 5	44	46
3	Old Elsmore	. 2	**	46
4	Moran	. 4	Marmato	n township.
5	Bayard	. 4	Township	not given.
6	Carlyle		Carlyle to	ownship.
7	Iola	. 26	Township	not given.
8	Mount Hope	. 40	Humbold	t township.
9	Humboldt Catholic		Township	not given.
10	Piqua	. 6	"	ıı .
11	Preston.	. 3	**	"
12	Salem	. 4	44	
13	Geneva	. 5	Geneva t	ownship.
14	La Harpe	. 2	\mathbf{Elm}	"
15	De Witt	. 2	Logan	44
16	Elison	. 3	ü	44
17	Lash	. 1	Cottage (Grove township.
18	German	. 1	"	" "
19	Fairview	. 4	Osage to	wnship.
20	Maple Grove	3	_	-,
21	Stanley			•
22	Mann	1		
23	Swedish Lutheran	1		
	Total	134		
	2000	-01		
	ANDERSON COL	UNTY.		
No.	Name.	Acres.	Locat	tion.
1	Catholic	10	Reeder to	
2	Central City	5	44	"
3	Glenwood	3	**	46
4	Bethel	2	44	44
5	Judy	3	Monroe	44
6	Greeley	3	Walker	"
7	Canton	1	Monroe	44
8	Garnett	15	**	"
9	Glenloch	2	Jackson	"
101	Amish Mennonite	1	44	46
11	Welda	5	Welda	66
	~ •	_	A 1	4.4

Ozark

ANDERSON COUNTY—concluded.

No.	Name.	Acres.	Location.	
13	Holy Cross	1	Westphalia town	nship.
14	Cherry Mound	1	••	4
15	Westphalia	2	"	•
16	Lone Elm	5	Lone Elm '	•
17	Kincaid	5	Rich '	•
18	Deer Creek	5	"	•
	Total	74		

ATCHISON COUNTY.

No.	Name.	Acres.	Loca	tion.
1	Sap	2	Walnut to	wnship.
2	Summers	21	**	"
3	Young	1	44	"
4	Collard	2	66	"
5	Sumler	· 6	66	"
6	Pardee	2	Center	"
7	Cummarg	2	66	"
8	Lancaster		Lancaster	"
9	Alderson's Grove	. 1	"	"
10	Old Huron	. 1	**	"
11	St. Benedict	. 10	Shannon	"
12	Oak Hill	20	44	**
13	Mt. Vernon	40	66	"
	Total	931		

BARBER COUNTY.

No.	Name.	Acres.	Location.
1	Amber		Elm Mills township.
2	Kiowa		Kiowa "
3	Lake City	. 2	Lake City "
4	Highland	10	Medicine Lodge township.
5	Garten		Mingona township.
6	Newkirk	3	Moore "
7	Burgess	1	Sharon "
8	Sharon	. 4	44 44
9	Isabel	11	Valley "
10	Lacy	1	-
11	Ball's	1	
12	Keys	. 1	
13	Rose Hill	8	Hazelton city.
14	Riverview	. 10	-
15	Sun City	5	
	Total	57 §	

BARTON COUNTY.

No.	Name.	Acres.	Loca	tion.
1	Olivet		Albion to	
2	Boyle	-	"	**
3	St. Catherine's		Beaver	**
4	Friends	-	46	44
5	Quaker		44	46
6	German M. E.		44	**
7	Union	. 1	Cheyenne	44
8	German Lutheran	. 2	Clarence	44
9	Bethel	. 1	Cleveland	township.
10	Walnut Valley	4	Eureka	"
11	Fairview	. 4	Fairview	66
12	Olmitz	. 3	Grant	66
13	Woodlawn	3	Homestea	d township.
14	Hoisington	3	**	• •
15	St. John	1	**	**
16	St. Peter and St. Paul	11	Lakin tow	nship.
17	St. Joseph	6	•6	"
18	Ellinwood	8	44	"
19	Dundee Valley	1	Liberty	**
20	Montgomery	1	Logan	"
21	Methodist	1		
22	Deal	2		
23	Everitt	2		
24	Holy Family	1		
25	Pawnee Rock	3		
2 6	Free Thinkers	1		
	Total	63		

BOURBON COUNTY.

	BOOKBON COCKII:			
No.	Name.	Acres.	Locat	tion.
1	Fulton	1	Osage tov	vnship.
2	Maple Grove		"	"
3	Barnesville		44	44
4	West Liberty	4	44	"
5	St. Michael	1	Freedom	44
6	Zion	3	"	44
7	Shaffer	2	46	"
8	Van Dole	4	**	"
9	Mapleton	1	Timber H	ill township.
10	No name	4	Marion	**
11	Evergreen	80	Scott	"
12	Oak Grove	20	"	46
13	Custard	ŧ	Dry Wood	l "
14	Endicott	ł	**	4.6
15	Howard	ŧ	**	4.6
16	Large	4	"	46
17	Tweedy	ŧ	66	**
18	Black Jack	3	Pawnee to	ownship.

Kansas State Horticultural Society.

BOURBON COUNTY-concluded.

	BOURBON COUNTY-	·conclu	ded.	
No.	Name.	Acres.	Loca	tion.
19	Hiattville	10	Pawnee to	wnship.
2 0	Catholic	5	"	"
21	Rosedale	2	Walnut	4.6
22	Avondale			
23	Dayton	4		
24	Northway (private)	1		
25	Osage Valley	2		
26	Limestone	6		
27	Marmaton & Woods	5		
28	Bronson	8		
	Total	176		
	Too many small plats.			
	BROWN COUN			
No.	Name.	Acres.	Locati	
1	Pleasant Hill	2	Irving town	ıship.
2	Mount Roy	1	66 . 60	1
3	Hiawatha	25	Hiawatha t	ownship.
4	Mount Hope	20	46	"
5	Ununda	2	Robinson	"
6	Rose Hill	5	44	"
7	Zion Evangelical	3	Washington	ı "
8	Powhattan	3	Powhattan	"
9	Comet	2	" "	"
10	West Powhattan	3	"	"
11	No name	1	44	"
	Total	67		
	10001	01		
	BUTLER COUN	TY.		
No.	i	Acres.	Locatio	on.
1	Augusta	10	Augusta to	
2	Augusta, first addition	5	"	"
3	St. Henry	4	"	"
	North Benton	5	Benton	66
5	Andover	5	Bruno	44
6	Chelsea	- 5	Chelsea	"
7	Clifford.	5	Clifford	44
8	Ebenezer	2	Cintota	44
9	Lone Star	1	Class	44
10		_	Clay	"
11	Douglass	10	Douglass	44
	Belle Vista	10	El Dorado	"
12	West	10	"	"
13	High Prairie	3		
14	Fairmount	5	Fairmount	44
15	Pleasant View	5		"
16	Ridgeway	5	Lincoln	**
17	Number 8	1	**	"
18	Burns	5	"	"

BUTLER COUNTY—concluded.

	BUTLER COUNTY— c	onclud	ed.
No.	Name.	Acres.	Location.
19	Leon	5	Little Walnut township.
20	Leon (Christian)	5	
21	Emanuel	5	Milton township.
22	Milton	5	"
23	Cariboo	5	Murdock "
24	Union	2	"
25	Pleasant	5	Pleasant "
26	McGill	2	Plum Grove township.
27	Potwin	2	
28	Sycamore	$\bar{2}$	Sycamore "
29	Latham	8	Union township.
30	Richland	2	Chion township.
31	Friends.	1	
01	-		
	Total	145	
	GT1.GD G07D		
	CHASE COUNT		T 41
No. 1	Name. Bazaar	Acres. 2	Location. Toledo township.
		1	Matfield "
2	Sharp's Creek	_	matheid
3	Union	6	Dazaar
4	Cedar Point	6	r ans
5	Elmdale	10	Cottonwood township.
6	Elk	5	Diamond Creek "
7	Drummond (private)	1	Strong township.
8	Bennett "	1/2	Cedar "
9	neskett	1 2	
10	Miller	1	
11	Prairie Grove	5	
	Total	38	
	CHAUTAUQUA CO	UNTY.	
No.	Name.	Acres.	Location.
1	West Liberty	31/2	Salt Creek township.
2	Hall	2	"
3	California	1	"
4	Rogers	1	Township not given.
5	Spring Creek	1	66 66
6	Denick	1	44 44
7	Cloverdale	6	"
8	Pleasant Valley	2	""
9	New Cloverdale	10	"
10	Todd	1	Washington township.
11	Romine.	i	" "
12	Monett	21	66
13	Brown.	2	Township not given.
14	Big Caney	1	"" ""
15	Boston	4	46 44
16	Belknap	3	**
-0	~~mmgh	U	

Kansas State Horticultural Society.

	CHAUTAUQUA COUNTY—concluded.			
No.	Name.	Acres.	Locati	on.
17	Cedarvale	8	Township no	t given.
18	Grant Creek	1	"	**
19	Round Mound	3	"	**
20	Ireland	1	"	"
21	Greenwood	10	44	"
22	Mount Vernon	2	66	44
23	West End	11	44	"
24	Prospect	$2\frac{1}{2}$	44	"
2 5	St. Charles	2		
26	Sprague	2		
27	Lone Cherry	1		
28	Niotaze	2		
29	Elcado	4		
	Total	82	•	
1	Too many small plats.			
	•			
	CHEROKEE COU	NTY.		
No.	Name.	Acres.	Locati	on.
1	Pleasant View	4	Cherokee toy	
2	Catholic	6	"	46
3	Council Corner	12	66	44
4	Unnamed	44	Sheridan	44
5	Dove	2	Lola townshi	n.
6	Spiekelman.	2	66 66	Τ.
7	Cherokee.	2	**	
8	German	ī	**	
9	Bethlehem	3	Crawford to	wnship.
10	Friends	4	"	66
11	Columbus.	10	44	"
12	Stepherson	1	Lowell	**
13	Unnamed	3	Spring Valley	7 "
	Total	541		,
	2000	0.2		
	CHEVEDON COL	ra.7003.F		
No.	CHEYENNE COU		Location	on
No.	Mount Herman	Acres.	Alexander to	
2	Russian	2	Beaver	"
3	Olte	2	Benkelman	66
3 4	Jaqua	4	Bird City	"
5	Southeast corner of 29-4-41.	2	Dita Oity	
6	Sunny Side	4		
7	Schall	1		
8	Zwegart.	6		
9	Gritzland	U		
10	_	••••		
TO	Evergreen			

	CLARK COUN	TY.		
No.	Name.	Acres.	Location	n.
1	Lexington	5	Lexington tov	
2	Appleton	20	Appleton	"
3	Englewood	20	City of Engle	mood
4		40	Orty or Engle	wood.
_	Ashland			
5	Edward	4	•	
6	Minneola			
	Total	109		
,	CLAY COUNT	TV.		
No.	Name.	Acres.	Location.	
1	Athelstane	2	Athelstane to	wnship.
2	Republican City	10	Blaine	"
3	Wilson	2	44	"
4	Bloom	3	Bloom	"
5	Lincoln	2	"	"
6	Geist	1	66	
_			Chamman	"
7	Swartwood	1	Chapman	46
8	Broughton	2	Clay Center	"
9	Pleasant Ridge	31	Exeter	44
10	Wesleyan	$2\frac{1}{2}$		••
11	Idana	1	Five Creeks	"
12	Hebron	1	"	"
13	Timber Creek	2	Grant	"
14	Gatesville	2	"	"
15	Mizpah	2	Gill	"
16	St. Johns	1	**	"
17	Mission	1		
18	Hayes	11	Hayes	44
19	Greenwood	40	ü	"
20	Fancy Creek	1	Highland	4.
21	Green	1	-66	44
22	German	1	44	"
23	Riverdale	1	Mulberry	"
24	Rose Marian	3	Oakland	"
25	Pleasant Valley	2		"
26	Highland	10	Republican	"
27	Madura	3		"
28	Sherman	3	Sherman	"
29	Morganville	3	**	"
30	Gilbert	2	Union	"
31	Uniondale	1 1	Garfield	"
32 33	Latter-day Saints	1	Garneid	
34	Truedell	1		
3 4 35	Norwegian Evangelical	i		
36	Swedish Evangelical	1		
37	Hays	2		
38	Pleasant Hill	5		
39	Vining	10		
•••	•			
	Total	1371		

Too many small plats.

CLOUD COUNTY.

	CLOUD COUN	TY.		
No.	Name.	Acres.	Locat	ion.
1	St. Marys	5	Grant tow	nship.
2	St. Marys	13	Aurora	"
3	Pleasant View	12	Shirley	**
4	St. Joseph.	5	"	**
5	Pine Tree	1#	**	**
6		15	Elk	"
-	Mount Hope		EIK "	**
7	Catholic	••••		"
8	Fairview	5	Buffalo	
9	Bethel	2	"	"
10	Danish Lutheran		_	
11	Lawrence	4	Lawrence	
12	Pleasant Valley	• • • •	44	46
13	Heber	5	Oakland	**
14	Miltonvale	5	Center	46
15	Pleasant Ridge	3	Starr	**
16	Rice	1	44	66
17	Catholic	8	Nelson	**
18	Maceyville	3	Solomon	**
19	Hartinger	2	66	46
20	Highland.	2	Arion	44
21	Summit	2	"	**
22	Macks.	2	46	**
23	Bethel M. E.	2	Lyon	66
24		3	Lyon "	**
	Cathlend	-	T impole	**
25	Gothland	3	Lincoln	44
26	Sibley	2	44	"
27	Lutheran	••••		"
28	Carmel	1	Summit	••
29	Sulphur Springs Union	2		
30	Princeville	1		
31	Enterprise	1		
32	Kindel	3		
33	Jamestown	1		
34	Church Saron	1		
35	South Lawrence	4		
36	St. Peter's	2		
37	Pleasant Hill	1		
38	Union	5		
39	Pleasant View	5		
40	Mulberry	5		
41	Saron	2		
42	Glasco.	5		
43	Private.	1		
40	I IIVavc			
	Total	1462		
	Area of three not circa			

Area of three not given.

COFFEY COUNTY.

	COFFEY COUN	TY.		
No.	Name.	Acres.	Location.	
1	Catholic	10	Burlington tov	vnship.
2	Graceland	10	66	"
3	Mount Hope	5	66	"
4	Cola Hill	2	44	44
5		12	California	"
6	Sherwood	2	Hampden	44
7		2	Key West	44
8	Key West	1	-	**
_	German		Liberty	"
9	Teachout	2		"
10	Fairhope	2.	"	"
11	Gridley	8		
12	Lincoln	91	Lincoln	"
13	Crandall	1	Neosho	"
14	Presbyterian	1	"	"
15	Schlichter	1	"	"
16	Otter Creek	3	Pleasant	"
17	Bailey	4	66	"
18	Glendale	2	Pottawatomie	township.
19	Hall's Summit	3	"	66
20	Prairie View	2	**	**
21	Waverly	5	Rock Creek	66
22	Catholic	5	110CE CICCE	66
23		5	44	"
	Agricola			"
24	Logue	11	Spring Creek	"
25	Keith	. 1	"	"
26	Weimer	1		
27	Star	2	Star township	•
2 8	Le Roy	8		
- 29	Imel	2	• • • • • • • • • • • • • • • • • • • •	
30	Grobengeiser	2	** **	
31	Center Hill	2	** **	
32	Pleasant Hill	1	** **	
33	Quistling	1	"	
34	Altamont.	5	"	
35	Volland	2		
36	Boman	1		
37	Strawn.	2		
38	Hoover	1		
39	Peres	4		
40	Walnut Grove	2		
41		1		
41 42	Stringtown	2		
_	Big Creek	_		
43	Lysle	3		
44	Stoeltzing	ŧ		
45	Kesner	, 1		
46	French Ridge.	4		
	Total	140#		
,	Too many little ones.			
	TOO many need once.			

COMANCHE COUNTY.

No.	Name.	Acres.	Location.	
1	Protection	40	Protection to	wnship.
2	McMillan	. 1	Powell	"
3	Avilla	. 5	Avilla	"
4	Nescatunga	10	Nescatunga	"
5	Crown Hill	40	Logan	"
	Total	96		

COWLEY COUNTY.

No.	Name.	Acres.	Location	n.
1	Beaver	4	Beaver tow	nship.
2	Hope	11	Bolton	44
3	Springside	5	Cedar	"
4	Parker	. 5	Cresswell	"
5	Johnson		Dexter	"
6	South Winfield	5	Fairview	"
7	Floral	3	Grant	"
8	New Salem	2	Harvey	"
9	Wilmot	3	Liberty	"
10	Polo	1	Maple	"
11	Ninnescah	2	Ninnescah	"
12	Unnamed	31	Omni a	"
13	44	. 1	Otter	66
14	Riverview	10	Cedar	"
15	Dexter	4	Dexter	"
16	Walnut Valley	2	Fairview	"
17	Catholic	2	Maple	"
18	Maple	1	. 66	44
19	Star Valley	1	• •	"
20	Udall	5	Ninnescah	4.
21	Union		Walnut	"
22	Atlanta	3		
	Total	64		

Area of two not given.

CRAWFORD COUNTY.

No.	Name.	Acres.	Loca	tion.
1	Sheffield	$2\frac{1}{2}$	Lincoln to	wnship.
2	Catholic	15	44	"
3	Williams	1	**	"
4	Farlington	4	Sherman	"
5	Family	1	44	44
6	German	2	**	66
7	No name	42	44	4.6
8	Hepler	10	Walnut	44
9	Walnut	10	44	4.6
10	Walnut, Catholic	5	66	44
11	Lutheran	1	4.6	44
12	Catholic	6	Grant	"

CRAWFORD COUNTY-concluded.

No.	Name.	Acres.	Location.	
13	Girard	20	Crawford township.	
14	No name	15	Washington township.	
15	Mount Olive	30	Baker township.	
16	Catholic	10	"	
17	Beulah	2	Sherman "	
18	Cherokee	10	66 66	
19	Mount Carmel	5	**	
20	Sale	2	44	
21	Monmouth	2	"	
22	Union	£	Osage "	
23	McCune	5	" "	
24	Hickory Grove	2	46 66	
25	Holson's	10		
26	Greenbush	10		
27	Roselawn	5		
28	Spangler's	1		
29	Langdon	1		
	Total	198		
	10001	100		
	•			
	D. 24			
DECATUR COUNTY.				
M-			f a sald an	
No.	Name.	Acres.	Location.	
1	Name. Allison	Acres.	Allisen township.	
1 2	Name. Allison	Acres. 1 2	Allisen township. Altory "	
1 2 3	Name. Allison	Acres. 1 2 5	Allisen township. Altory "Bassettville township.	
1 2 3 4	Name. A Allison Big Timber Kanona Fairview	1 2 5 4	Allisen township. Altory "Bassettville township. Beaver "	
1 2 3 4 5	Name. A Allison Big Timber Kanona Fairview Oberlin	1 2 5 4 5	Allisen township. Altory " Bassettville township. Beaver " Center "	
1 2 3 4 5 6	Name. A Allison Big Timber Kanona Fairview Oberlin Hawkeye	1 2 5 4 5 2	Allisen township. Altory " Bassettville township. Beaver ." Center " Cook "	
1 2 3 4 5 6 7	Name. A A A A A A A A A	1 2 5 4 5 2 10 1	Allisen township. Altory " Bassettville township. Beaver ." Center " Cook " Grant "	
1 2 3 4 5 6 7 8	Name. Allison Big Timber Kanona Fairview Oberlin Hawkeye Lysle. Harlan	1 2 5 4 5 2 101 1	Allisen township. Altory " Bassettville township. Beaver ." Center " Cook " Grant " Lyon "	
1 2 3 4 5 6 7 8 9	Name. A A A A A A A A A	1 2 5 4 5 2 10½ 1 2	Allisen township. Altory " Bassettville township. Beaver ." Center " Cook " Grant " Lyon " Olive "	
1 2 3 4 5 6 7 8 9	Name. A A A A A A A A A	1 2 5 4 5 2 101 1 2 10	Allisen township. Altory " Bassettville township. Beaver ." Center " Cook " Grant " Lyon " Olive " Prairie Dog "	
1 2 3 4 5 6 7 8 9 10	Name. A A A A A A A A A	Acres. 1 2 5 4 5 2 10 1 2 10 2	Allisen township. Altory " Bassettville township. Beaver ." Center " Cook " Grant " Lyon " Olive " Prairie Dog " Sherman "	
1 2 3 4 5 6 7 8 9 10 11 12	Name. A A A A A A A A A	1 2 5 4 5 2 10½ 1 2 10 2 3	Allisen township. Altory " Bassettville township. Beaver ." Center " Cook " Grant " Lyon " Olive " Prairie Dog "	
1 2 3 4 5 6 7 8 9 10 11 12 13	Name. A A A A A A A A A	Acres. 1 2 5 4 5 2 10 1 2 10 2 3 5	Allisen township. Altory " Bassettville township. Beaver ." Center " Cook " Grant " Lyon " Olive " Prairie Dog " Sherman " Summit "	
1 2 3 4 5 6 7 8 9 10 11 12 13 14	Name. A A A A A A A A A	Acres. 1 2 5 4 5 2 10 1 2 10 2 3 5 5	Allisen township. Altory " Bassettville township. Beaver ." Center " Cook " Grant " Lyon " Olive " Prairie Dog " Sherman " Summit " Dresden township.	
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	Name. Allison Big Timber Kanona Fairview Oberlin Hawkeye Lysle Harlan Vallonie Shibboleth Sherman Lund (?) Catholic Dresden Clayton	Acres. 1 2 5 4 5 2 10 1 2 10 2 3 5 5 5	Allisen township. Altory " Bassettville township. Beaver ." Center " Cook " Grant " Lyon " Olive " Prairie Dog " Sherman " Summit " Dresden township. Garfield "	
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	Name. A A A A A A A A A	Acres. 1 2 5 4 5 2 10 1 2 10 2 3 5 5	Allisen township. Altory " Bassettville township. Beaver ." Center " Cook " Grant " Lyon " Olive " Prairie Dog " Sherman " Summit " Dresden township. Garfield " Grant "	
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	Name. Allison Big Timber Kanona Fairview Oberlin Hawkeye Lysle Harlan Vallonie Shibboleth Sherman Lund (?) Catholic Dresden Clayton Grant Township Redman	Acres. 1 2 5 4 5 2 10 1 2 10 2 3 5 5 5 5 5 5 5	Allisen township. Altory " Bassettville township. Beaver ." Center " Cook " Grant " Lyon " Olive " Prairie Dog " Sherman " Summit " Dresden township. Garfield " Grant " Jennings "	
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	Name. A A A A A A A A A	Acres. 1 2 5 4 5 2 10 1 2 10 2 3 5 5 5 5 5 1	Allisen township. Altory " Bassettville township. Beaver " Center " Cook " Grant " Lyon " Olive " Prairie Dog " Sherman " Summit " Dresden township. Garfield " Grant " Jennings " Lincoln "	
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	Name. Allison Big Timber Kanona Fairview Oberlin Hawkeye Lysle Harlan Vallonie Shibboleth Sherman Lund (?) Catholic Dresden Clayton Grant Township Redman	Acres. 1 2 5 4 5 2 10 1 2 10 2 3 5 5 5 5 5 5 5	Allisen township. Altory " Bassettville township. Beaver " Center " Cook " Grant " Lyon " Olive " Prairie Dog " Sherman " Summit " Dresden township. Garfield " Grant " Jennings " Lincoln " Olive "	
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	Name. Allison Big Timber Kanona Fairview Oberlin Hawkeye Lysle Harlan Vallonie Shibboleth Sherman Lund (?) Catholic Dresden Clayton Grant Township Redman Norcatur	Acres. 1 2 5 4 5 2 10 1 2 10 2 3 5 5 5 5 5 5	Allisen township. Altory " Bassettville township. Beaver " Center " Cook " Grant " Lyon " Olive " Prairie Dog " Sherman " Summit " Dresden township. Garfield " Grant " Jennings " Lincoln "	

DICKINSON COUNTY.

No.	Name.	Acres.	Location.	
1	Fairview	5	Wheatland tov	vnship.
2	Mount St. Joseph	20	Buckeye	"
3	Livingston	3	Grant	"
4	Zion	2	Newton	"
5	Swedish Union	5	Center	"
6	Swedish Bethlehem	5	Logan	"
7	Mount Hope	_	Ridge	**
8	Detroit	_	Норе	"
9	Navarre	_		"
10	Belle Springs	_	Fragrant Hill	"
11	Pilgrims' Home	_	Noble	"
12	Lyona	_	Rinehart	"
13	Woodbine		Liberty	"
14	Prairie Mound		Solomon	"
			Hope city.	
15	Hope		Hope city.	
	Total	56		

DONIPHAN COUNTY.

	DOMII IIAN OO	D14 2 2 .		
No.	Name.	Acres.	Locati	lon.
1	Walnut Grove	2	Township	not given.
2	Iowa Point	. 2	44	"
3	Iola	. 1	"	"
4	Highland	. 4	66	• •
5	Betner		66	44
6	Wolf River	_	46	64
7	Springer		44	**
8.			44	**
9	Oak Hill	_	" .	64
10	Denton			44
11	St. Benedict		66	44
12	St. Marys		"	44
13	Andersons		•	. 44
14	Robertsons		44	46
15	Courter		્દદ	**
16	Mt. Olive		44	44
17	Conger	•	66	64
18	Unnamed		**	4.6
19	France (family)	•	44	44
20	German Reform C		46	44
20 21	Gladden		**	44
21 22	Unnamed.	_	44	46
	Belmont		44	**
23	Rosedale		44	
24	Palermo		46	66
25		_	66	44
26	Lutheran			
	Total	89.4		

DOUGLAS COUNTY.

	DOUGLAS COU		_		
No.		Acres.	Loca		
1	Oak Hill	40	Wakarusa		hip.
2	Richland	2	**		
3	Kennedy	11	**	"	
4	Mount Oread	7	**	**	
5	Haskell		46	"	
6	Marshall		44	"	
7	Poor Farm		44	"	
8	Roman Catholic	• • • •	44	"	
9	Franklin (old)	7	66	44	
10	Brune	-	**	"	
11	Davis	1	46	**	
12	Maple Grove	20	Grant	"	
13	Big Springs		Lecompton	**	
14	Catholic		"	• • •	
15	Lecompton		**	**	
16	German	4	Kanwaka	"	
17	Mound or Sconton	-	"	66	
18	Clinton	5	Clinton	"	
19	Swedish	1	66	66	
20	No name	_	Marion	• •	
21	Pleasant Hill	171			
21 22		11	Willow Spri	ngs t	ownsnip.
	Sutton	5	44		66
23	Harbour	1			44
24	German Lutheran	2	"		66
25	Williams	1			46
26	Ulrich	1,0			
27	Baldwin (old and new)	18	Palmyra to	wnship).
28	West Baldwin	2	"		
29	Vinland	• • • •	46	**	
30	Stony Point	• • • •	**	"	
31	Black Jack	3	44	44	
32	Clearfield	2	66	"	
33	Blue Mound	2	Wakarusa	"	
34	Washington Creek	21	Marion	"	
35	Appanoose	$2\frac{1}{4}$	"	4.6	
36	Twin Mound	1	"	••	
37	Eudora	20*	Eudora	"	
3 8	Jewish		"	"	
39	Catholic		**	"	
40	Colored			"	
41	Hesper		**	"	
42	Horn		**	"	
	Total	16917			
		-00 % 0	_		

^{*}Twenty acres estimated for the last-named six. Area of eleven not given.

EDWARDS COUNTY.

No.	Name.	Acres.	1	location.
1	Kinsley	20	Kinsley	township.
2	Catholic	3	"	"
3	Kinsley (old)	5	44	44
4	St. Peter and St. Paul	20	Logan	**
5	Salem M. E	5	"	**
6	Wayne	5	Wayne	**
7	Catholic	1	Belpre	**
8	Belpre	2	66	44
	Total	61		

ELK COUNTY.

No.	Name.	Acres.	Location.	
1	Upola	5	Painterhood to	wnship.
2	Bushy	3	44	"
3	Green Lawn	10	Greenfield	"
4	Longton	5	Longton	44
5	Cresco.	3	Paw Paw	44
6	Pleasant Plain	3	44	44
7	Fairview	2	44	"
8	Bunker Hill.	1	Union Center	"
9	Clear Creek	5	44	46
10	Union Center	1		44
11	Elk Falls	8	Elk Falls	"
12	Moline	5	Wild Cat	"
13	Ames Chapel	5	"	"
14	Oak Valley	5	Oak Valley	"
15	Grace Lawn	10	Howard	44
16	North Pole	2	Liberty	"
17	Wade	3	16	"
18	Woodall	ĭ	çe	**
19	Rural Vale	2	Paw Paw	"
20	Grace Lawn	10	Greenfield	"
21	Forest	3	Union Center	"
	Total	911		

ELLIS COUNTY.

No.	Name.	Acres.	Location	
1	Mount Allen	. 10	Big Creek to	wnship.
2	Catholic		٠,,	"
3	St. Catherine	. 5	Catherine	"
4	Mount Hope	. 10	Ellis	"
5	St. Anna		Walker	**
6	St. Francis (Catholic)	. 2	Wheatland	66
7	St. Mary's	. 10	Ellis	44
8	Holy Cross		Freedom	"
9	Easdall		44	66
10	St. Fidelis	. 5	Herzog	66
11	St. Anthony	. 1	Lookout	"
12	Turkville	. 1	Saline	"
13	Episcopal	1_	Victoria	"
	TotalArea of two not given.	. 57		

ELLSWORTH COUNTY.

No.	Name.	Acres.	Location.
1	Prairie Mound	5	Garfield township.
2	Fairview	4	Sherman "
3	Excelsior (Methodist)		Columbia ''
4	Mount Pleasant.		"
5	Terra Cotta		Carneiro "
6	German Baptist	_	Green Garden township.
7	Union		" " " "
8	Buckeve		Empire "
9	Langley		Langley "
10	Ellsworth	_	Ellsworth "
11	Carneiro		Carneiro
12	Methodist Episcopal	-	"
13	Christian Church		
14	Excelsior Lutheran		Columbia
15	St. Paul		Sherman
16	Clear Creek	_	Clear Creek "
17	Kanopolis		
18	Palacky		raiacky
19	Guldner		Green Garden
20	Wilson		Wilson
21	Catholic		"
22	Catholic (addition)		"
23	Old Military		(At Kanopolis.)
24	Holyrood	. 2	City of Holyrood.
25	German Lutheran		Valley township.
26	Roman Catholic	. 5	44 44
	Total	. 981	
	FINNEY COU	NTY.	
No	Name.	Acres.	Location.
1	Ravanna	. 5	Garfield township.
2	Goldammers	. 2	Ivanhoe "
3	Garden City	. 20	City of Garden City.
4	Pierceville	. 10	Pierceville township.
5	The Heights		Garden City "
6	Eminence		Garfield ''
·	Total		
	10(a)	. 02	
	FORD COU	INTV.	
No	•	Acres.	Location.
1	Pleasant Valley		Pleasant Valley township.
2	Royal	-	Royal township.
3	Ford.		Ford "
4	Concord		Concord "
5	Maple Grove	-	Dodge "
6	G. A. R		Dodge "
7	Catholic		46 46
-			••
8	Wright	1	Grand View township.

FORD COUNTY-concluded.

	ford county—concluded.			
No.		Acres.	Location	
9	Soldiers' Home	5	Grand View to	wnship.
10	Ridenour	2	Royal townsh	ip.
11	Rickman	2	Concord "	
12	Silent Land	5	Spearville "	
	Total	331	-	
	Area of three not given.	002		
	in on the second second			
	FRANKLIN COU	NTV		
NT.			T	
No. 1	Name. West Appanoose	Acres.	Location. Appanoose tov	mahin
2	Wellsville	4	Franklin	ummp.
3	Walnut Creek	2	riankiin "	"
-	Central	_		44
4		5	Greenwood	**
5	Greenwood	3	••	"
6	Highland	40	Harrison	44
7	Mound	1		••
8	Muncie	1	Lincoln	"
9	Hop e	4 0	Ottawa	
10	Mission	5	44	"
11	Baxter	2	**	"
12	Evergreen Mound	• • • •	"	"
13	Lane	5	Pottawatomie	"
14	Baker	5	• •	"
15	Richmond	4	Richmond	"
16	Berea	6	"	"
17	Dean	3	Appanoose	44
18	Minneola	1	Centropolis	"
19	Kaub	1	"	44
20	Pleasant Hill	3	66	"
21	Centropolis	11	"	"
22	Ruhama	2	Cutter	44
23	Woodlawn	10	Pomona	"
	Total		2 01110114	
		1452		
4	Area of one not given.			
	47.7. 40.7.			
	GEARY COUN			
No.		Acres.	Location.	•
1	Catholic	10	Milford townsh	up.
2	Highland	40	Sinoky IIII	
3	German Baptist	3	Lyon	
.4	Morris	2	2 effetaon	
:5	Government Hill	5		
، 6	Skiddy	10	Blakely "	
· 7	Milford	4	Springfield "	
8	Briggs	1	Jackson "	
9	Church	2	Liberty "	
10	Johnson	1	Township not g	iven.
11	Moss Springs	2	"	
	- -			

GEARY COUNTY-concluded.

No.		Acres.	Location.
12	German Methodist	••••	Jefferson township.
13	German Lutheran	••••	"
14	St. Paul		** **
15	Highland	8	Blakely "
16	Boger	1	"
17	McDowell		Jackson ''
18	Humboldt		Wingfield "
19	Briggs		Jackson "
	Total	89	0 40115011
	10tai	09	
	COLD COLD	117	•
	GOVE COUNT	-	.
No.		Acres.	Location.
1	Gaeland	3	Gaeland township.
2	Hope	2	16 16
3	Swedish Lutheran	31	Lewis ''
4	Gove City	10	Gove "
5	Quinter	10	Baker "
J	•		Daker
	Total	$28\frac{1}{2}$	
	GRAHAM COUN		
No.		Acres.	Location.
1	Roscoe	5	Graham township.
2	Hill City	10	Hill City "
3	South Star	2	Indiana "
4	Indiana Township	2	44 44
5	Mock	2	Millbrook "
-		_	
6	Prairie Dale	2	Pioneer "
7	Pleasant Prairie	1	
8	Pioneer	2	" " .
9	Whitfield	1	"
	Total	27	
	GRANT COUNT	ry.	
No.	Name.	Acres.	Location.
1	Ulysses	10	Lincoln township.
2	Shockey	5	Sherman "
3	Golden	. I	Sullivan "
4	Zionville.		<i>"</i>
-			
	Total	151	
4	Area of one not given.		
	· .		
	GRAY COUNT		
No.		cres.	Location.
1	Cimarron	10	Cimarron township.
2	Ingalls	2	Ingalls "
3		1	Hess "
4	Montezuma	_1_	Montezuma ''
	Total	14	

	. GREELEY COU	NTY.	
No.	Name.	Acres.	Location.
1	Knights of Pythias	5	Harrison township.
2	Grand Army of the Republic	5	Colony "
3	Bethany	5	Tribune "
	Total	15	
	"A few graves scattered over the cou	inter n	ut there in an early day
	e first deaths in this county were two m		
	GREENWOOD CO	UNTY.	•
No.	Name.	Acres.	Location.
1	D. S. Andrew	1	Madison township.
2	Prairie Light	1	
3	Park Place	4	44 44
4	Blakeley	3	66 66
5	Piedmont	2	Otter Creek township.
6	Star	2	44 44
7	Otter Creek	1	**
8	Means.	10	Pleasant Grove "
9	Pleasant Valley	3	Quincy "
10	German	4	Shell Rock "
11	Lena Valley	4	66 66
12	Spring Creek.	2	Spring Creek "
13	Lowery	1	Spring Oreek
14	Charleston	2	Salt Springs "
15		1	South Salem "
	Barrier	_	South Salesi
16 17	Norwegian Lutheran	1 10	Therein Courses 44
	Twin Groves		Twin Groves "
18	Twin Falls	11	Eureka city.
19	Greenwood	32	Eureka tewnship.
20	Hamilton	20	2 writes A His
21	Virgil	10	Lane
22	Fairview	1	Madison "
23	Kelley	1	
24	Worrell	11	Spring Creek township.
25	Brown Chapel	2	Salt Springs "
26	Eckes	2	••
•	Total	113°_{14}	
	All too small.		
	HAMILTON COU	NTY.	
No.	Name.	Acres.	Location.
1	Bear Creek	5	Bear Creek township.
2	Coolidge	20	Coolidge "
3	Kendall	30	Kendall "

Syracuse

Area of one not given.

	HARPER COUR	FTY.	
No		Acres.	Location.
1	Forest Park	111	Anthony township.
2	Spring Grove	10	Banner "
3	Bonham	1	Berlin "
4	Duquoin	2	Blaine "
5	Bethany	2	Chicaskia ''
6	Star Center	1	Eagle "
7	Melvin	2	Empire "
8	Attica	10	Garden ''
9	Catholic	2	Grant "
10	Danville	4	Green "
11	Mennonite	1	Harper "
12	German	1	Lake "
13	Odd Fellows	10	Lawn "
14	Trinity Mission	3	Liberty "
15	Private	2	Odell "
16	Stohrville	21	Pilot Knob "
17	Waldron	1	Empire "
18	Freeport	2	Silver Creek "
19	Pleasant Hill	2	Attica city.
20	Levare	2	Bluff City.
	Total	714	•
	Too many of small area.	•	
			•
	HARVEY COUN	TY.	
No.		Lores,	Location.
1	Alta township	3	Not given.
2	Burrton township	10	66
3	Emma township	3	44
4	Garden township, No. 1	5	44
5	Chartest coastents, tao. 7)	-	46
6	Highland township	3	44
7 8	Halstead township	10 3	"
9	Macon townshipLake township, No. 1	2	44
10	Lake township, No. 2	2	"
11	Lake township, No. 3	2	44
12	Pleasant township	3	. 46
13	Richland township	3	44
14	Sedgwick township	10	"
15	Walton township	5	44
16	Newton city	40_	••
	Total	104	
	HASKELL COUN		T 41
No.	Name. A Santa Fe	cres. 40	Location. Haskell township.
1 2	Ivanhoe	40 10	Township not given.
3	Calusa	2	Lockport township.
4	Lockport	ī	Haskell "
-		53	

	HODGEMAN COUNTY.					
No.	Name.	cres.	Location.			
1	Fairmount	20	Center township.			
2	Houston	1	Marena "			
3	Kidderville	2	North Roscoe township	p.		
4	German	1	Marena "			
5	German Evangelical Michaels	1	South Roscoe "			
	Total	25				
	10001					
	JACKSON COUN	MAT.				
			-			
No.	Name. Netawaka	Acres. 10	Location. Netawaka township.			
1 2			· . · . · . · . · · · · · · · · · · · ·	·i		
_	Moore	1	Straight Creek townsh	пр.		
3	Estes	1	" "			
4	Burns	1				
5	Soldier City	41	Soldier township.			
6	Haas	2	Liberty "			
7	Boan	3	Grant			
8	Buck's Grove	1	r rankun			
9	Nott	1	Garneid			
10	Olive Hill.	1	Cedar "			
11	Holton	8	Douglas "			
12	Denison	3	Adrian ''			
13	Moore	2	Washington "			
14	South Denison	• • • •	Township not given.			
15	Elliott	1	"			
16	Mullinax	1				
17	Hoyt	11	"			
18	Little Cross Creek	1	"			
19	Mount Olive	1	Adrian township.			
20	Adrian	1				
21	Whiting	3	Spring Hill township.			
22	Circleville	5	Jefferson "			
23	Washington	8 .	Washington "			
24	Gilleece	1 .	Cedar "			
25	Shield	1	Adrian "			
	Total	63				
	Area of one missing; too many little one					
	Area of one missing, wo many none one	-10.				
	JEFFERSON COU	NTV	•			
N.	•		f			
No. 1	Underwood	Acres.	Location. Rural township.			
2	Barnes	U	" "			
3	Halliday	••••	"			
4	Shun (?)	• • • •	46 46			
		10	Monton "			
5	Nortonville	10	Norton "			
6	Hart		"			
7	Money Creek	8	"			
8	Catholic	••••				
9	Rose Hill	1	Delaware township.			

JEFFERSON COUNTY—concluded.

No.	Name.	Acres.	Locati	on.
10	Tarrah		Delaware to	wnship.
11	Coal Creek		"	"
12	St. Paul	10	Rock Creek	"
13	Meriden	2	66.	44
14	Pleasant View	1	Ozawkie	"
15	Mount Calvary	10	Kentucky	"
16	Oak Ridge		"	"
17	Newman		44	44
18	Newman Catholic		46	"
19	Pleasant View	11	Oskaloosa	"
20	Plum Grove	10	"	"
21	Ross	1	Sarcoxie	"
22	Hardy	1	44	44
23	Wise	10	Jefferson	4.6
24	Ozawkie	10	Ozawkie	"
25	Olive Branch	5	Fairview	46
26	Grantville	15	Kaw	"
	Total	108		

Area of ten not given.

JEWELL COUNTY.

THE TOUCH			
Name.	Acres.	Locati	on.
Fairview	11	Sinclair to	wnship.
Switzer Gap		"	44
Balch	2	Grant	**
Caldwell	5	Vicksburg	"
Hill Grove	. 2	"	"
Westhope	1	Allen	"
Montana	3	Montana	**
Wilson		6.6	44
Shaffer Union	5	Harrison	44
Mankato	15	Center	66
Burr Oak	14	Burr Oak	44
Oak Creek		"	**
Baker	2	44	44
Dunker		"	44
Ionia	5	Ionia	44
Pleasant Hill	2	Athens	44
Athens	2	"	44
Providence	2	Highland	"
Salem	5	٠,,	
Highland	3	White Mou	nd township.
Odessa	2	Odessa tow	nship.
Mount Carmel			" ,
Rooker		-	ot given.
First Dutch Reformed	17	"	"
Laurel Hill	3	"	"
Webber	2	"	44
	Fairview Switzer Gap Balch. Caldwell. Hill Grove. Westhope Montana. Wilson. Shaffer Union Mankato Burr Oak Oak Creek. Baker Dunker Ionia Pleasant Hill Athens Providence. Salem Highland Odessa. Mount Carmel Rooker First Dutch Reformed Laurel Hill.	Fairview 1½ Switzer Gap 2 Balch 2 Caldwell 5 Hill Grove 2 Westhope 1 Montana 3 Wilson 5 Shaffer Union 5 Mankato 15 Burr Oak 14 Oak Creek 2 Dunker 5 Ionia 5 Pleasant Hill 2 Athens 2 Providence 2 Salem 5 Highland 3 Odessa 2 Mount Carmel 17 Rooker 17 First Dutch Reformed 17 Laurel Hill 3	Fairview 1½ Sinclair total Switzer Gap " Balch 2 Grant Caldwell 5 Vicksburg Hill Grove 2 " Westhope 1 Allen Montana 3 Montana Wilson " Shaffer Union 5 Harrison Mankato 15 Center Burr Oak 14 Burr Oak Oak Oak " Oak Oak Tok Oak Oak Oak Oak Tok Oak Oak

JEWELL COUNTY-concluded.

No.	Name.	Acres.	Location.	
27	Wilson	11	Township not give	an.
2 8	Buchner	2		
29	Northbranch	5	46 66	
3 0	Walnut Creek	1	**	
31	Jerusalem	1	66 66	
32	Sumner	11	"	
33	Rose Hill	1	44 44	
34	East Buffalo	3	"	
35	Fairview	3	"	
36	Delta	3	**	
37	Star	2	"	
38	Pleasant Prairie	2	"	
39	Randall	2		
40	Union	1	"	
41	Fairview	4	"	
42	McGehee	1	**	
	Total.	1268		

Area of six not given.

JOHNSON COUNTY.

No.	Name.	Acres.	Location	n. '
1	Shawnee	14	Shawnee to	wnship.
2	Lenexa	4	Monticello	"
3	De Soto	4	Lexington	44
4	Prairie Center	3	"	44
5	Lexington	1	66	44
6	Edgerton		McCamish	"
7	St. Columbia (?)		Gardner	"
8	St. Columbia	2	66	44
9	Gardner	4	44	"
10	Aubrey	3	Aubrey	"
11	Johnson		Mission	"
12	Highland	1	46	"
13	Corinth	1	44	"
14	Linwood	1	44	**
15	Union Center	5	Monticello	"
16	Monticello	5	"	64
17	Mount Calvary	8	Gardner	"
18	Winston	1	Aubry	44
19	Bethany	1	46	"
20	Union	1	**	"
21	Redpath	2	Oxford	"
22	Murdoek	1	**	"
23	Pleasant Valley	1	44	"
	Total	71		

KEARNY COUNTY.

	KEARNY COUR	YTY.	
No.	Name.	Acres.	Location.
1	Kearny	5	Hibbard township
2		10	
_	Lakin		Lakin "
3	Deerfield	10	Dogra Dige
4	Hartland	2	Hartland "
	Total	27	
	10081	21	
	KINGMAN COU	NTY.	
No.	Name.	Acres.	Location.
1	Dresden	2	Dresden township.
2	Nashville	4	Liberty "
_		_	Liberty
3	Pleasant Hill	6	Rochester
4	Maud	2	Rural "
5	Rago	5	Valley "
6	Oakland	10	Vinita "
7	Mount Pleasant	5	Allen "
8	Unnamed.	5	Bennett "
9		5	Dale "
-	Murdock	_	
10	Greenwood	3	Lagie
11	Penalosa	5	Lureka
12	Evan Mound	3	Evan
13	Waterloo	8	Galesburg "
14	Hoosier	10	Hoosier "
15	Bross	2	Kingman "
16	West Point	2	Liberty "
17	Willowdale	3	Peters "
18	Cunningham	2	Rural "
19	Walnut Hill	40	Kingman city.
	•		
	Total	122	
	KIOWA COUN	TY.	
No.	Name.	Acres.	Location.
1	Wellsford	2	Wellsford township.
2		10	·
_	Fairview		Greensburg "
3	Mullinville	7	Mullinville
4	Soldier Creek	5	Glick
5	Haviland Friends	2	Wellsford "
	Total	26	
	•		
	LABETTE COU	NTY.	
No.	Name.	Acres.	Location.
1	Rice	1	Neosho township.
2	Jacksonville	1 1	11 000110 10 WIRDING.
3	Cedar Chapel.	19	"
4	Dunker.	13	"
5	Oak Grove	1	Montana "
6		_	Montana "
-	Masonic	3	"
7	Montana	2	
8	Mount Moriah	10	Oswego ''
_			

	LABETTE COUNTY-	conclu	ied.	
No.	Name.	Acres.	Locatio	n.
9	Franklin	1	North townsh	ip.
10	Oak Wood	3 8	"	-
11	Spring Hill	2	Liberty "	
12	Labette	2		
13	Spring Valley	3	46 46	
14	Wilsonton	5	Labette "	
15	Hopewell	2	"	
16	Altamont	8	Mount Pleasa	nt twp.
17	Mount Pleasant	4	44	46
18	Elm Grove	2	Elm Grove to	wnship.
19	Edna City	3	66	"
20	Carpenter's	3	Osage	"
21	Richland	2	Canada	44
22	Roberts	1	Howard	**
2 3	Pearson	1	44	"
24	Trenton	1	"	**
25	Oswego	20	Oswego	44
26	Tibbetts	10	66	**
27	Pleasant Valley	6	Richland	**
28	Oak Hill	6	44	"
29	Calvary	5	Walton	"
30	Wooden	4	Mount Pleasar	it township.
31	Big Hill	2	Mound Valley	44
32	Mound Valley	10	66	44
33	Penfield	1	Canada	. 46
34	Lake Creek	1	Hackberry	"
	Total	1731		•
	Too many little plats.			
	LANE COUNT	Y.		
No.	Name.	Acres.	Location.	
1	White Rock	1	White Rock to	-
2	Shields	2	Wilson	"
3	Healey	11	Cheyenne	"
4	Dighton	10	Dighton	**
5	Sutton	2	Sutton	"
6	Petersburg	40	Spring Creek	"
7	Fillmore	4	Cleveland	46
	Total	20,70		
			•	
	LEAVENWORTH C	OUNTY.		
No.		Acres.	Location.	
1	Fall Creek	11	Alexandria to	
2	Sparks	11	44	**
3	Quaker	1	**	"
4	Moody	2	44 ,	**

LEAVENWORTH COUNTY-concluded.

No.	Name.	Acres.	Locatio	n.
7	Starnes	2	Delaware tow	nship.
8	Mount Calvary	80	44	"
9	Greenwood	13	"	66
10	Delaware	3	**	"
11	Mount Muncie	177	"	66
12	Stranger Baptist		Easton	"
13	Easton	2	44	66
14	Langley	1	High Prairie	"
15	High Prairie	4	• • •	"
16	Little Stranger	2	44	"
17	Pleasant Ridge	11	Kickapoo	"
18	St. Joseph	4	44	"
19	Sons of Truth	3	44	"
20	Oak Grove	2	**	"
21	Kickapoo	21	**	"
22	Sacred Heart	2	**	"
23	Reno	1	Reno	"
24	Zeigler (Delaware Indian)	1	**	"
25	Eagle	2	Tonganoxie	"
26	Oak Hill	5	Easton	44
27	Baird	2	"	44
28	Evergreen	1	**	4.6
29	Branchcomb	14	Kickapoo	"
30	St. Paul	1	"	"
31	Sherman	5	Sherman	"
32	Mount Sidney	24	"	4.6
33	Tonganoxie.	4	Tonganoxie	"
34	Maple Grove.		44	"
	Total	3431		

Area of one not given.

LINCOLN COUNTY.

No.	Name.	Acres.	Location	١.
1	Fairview	. 2	Salt Creek t	ownship.
2	Milo	. 2	Logan	"
3	Elkhorn	. 1	Colorado	"
4	Spring Creek	. 2	Madison	"
5	Beverly		Scott	"
6	Monroe		Beaver	"
7	Prairie Grove	. 2	Elkhorn	"
8	Heizer	. 2	Franklin	"
9	Catholic	. 2	Battle Creek	. "
10	Vesper Catholic	. 2	Marion	"
11	Danish Lutheran		Indiana	66
12	Free Mission	. 1	Valley	"
13	Vesper	. 2	Orange	"
14	Voss	. 1	Grant	"
15	Ketchem	. 5	Vesper	"
16	Sylvan Grove	. 5	Golden Belt	"
17	Orbitello	. 2	Cedron	"
	Total	398		

LINN COUNTY. No. Name. Acres. Location. 1 Mount Zion..... 2 Scott township. 2 Spangler No. 96..... 2 Sheridan township. Star Vallev..... 2 La Cygne Oak Lawn..... Lincoln Campbell Dolan Pleasant View..... 5 Blue Mound 2 Mound City..... 5 Mound City township. Battle Field 4 Park 11 2 Mound City township. Curry 3 13 Goodrich Pleasanton city. Highland 14 2 Liberty township. 15 Wait..... Potosi 1 Littell Parker city. Holmes..... 2 Eureka 19 Fisher Turner..... Perry Cadmus 5 Prescott city. 24 Prairie Home. 2 Stanton township. Brooklyn..... 2 Valley Mount Carmel.... Paris 1 27 Walnut Grove 1 Blue Mound township. Pleasanton city. Total...... Area of three not given; many little tracts. LOGAN COUNTY. No. Location. Acres 1 Over line in Thomas co. Monument..... Monument township. Russell Springs..... Russell Springs twp. Elkader township. 1 Winona Paxton Page..... 5 Augustine Total..... LYON COUNTY. Name. No. Acres. Location. 1 Ivy..... 2 Township not given.

"

4 Hartford Catholic

LYON COUNTY-concluded.

	LION COUNTI-CO	nciwus	. .	
No.	Name.	Acres.	Location.	
5	Eagle Creek	2	Township no	t given.
6	High Ridge	2	"	"
7		3	44	44
-	Olpe Catholic	-	44	44
8	Pleasant Hill	2	••	••
9	Haworth	2	"	"
10	Cottonwood	2	"	"
11	Americus.	5	44	66
12	Frost.	3	46	44
		_	44	"
13	Resean	1		
14	Pleasant Ridge	3-	4.6	"
15	Catholic	10	44	"
16	Maplewood	26	"	44
17	Upper Dry Creek	2	44	**
18	Lower Dry Creek	2	66	44
19		_	66	"
	Pleasant Ridge (?)	3	"	"
20	Burris	3	• •	
21	Catholic	3	44	"
22	Lutheran	2	"	"
23	Traylor		Jackson tow	nship.
24	Allen	3	Waterloo	66
25	Elmwood	3	Township no	+ circon
			-	_
26	Agnes City	2	Agnes City	ownsnip.
	M-4-1	119		
	Total	119		
	Total	119		
	MARION COUN			•
No.	MARION COUN		Location	
No.	MARION COUN	TY.		
1	MARION COUN Name. Durham	TY. Acres. 4	Durham Par	
1 2	MARION COUN Name. Durham	Acres. 4	Durham Par Fair Play	k township.
1 2 3	Name. Durham	Acres. 4 4 4	Durham Par Fair Play Grant	k township.
1 2 3 4	Name. Durham Catholic Township Com. Am. Mennonites	Acres. 4 4 2	Durham Par Fair Play Grant Riley	k township.
1 2 3	Name. Durham	Acres. 4 4 4	Durham Par Fair Play Grant	k township.
1 2 3 4	Name. Durham Catholic Township Com. Am. Mennonites	Acres. 4 4 2	Durham Par Fair Play Grant Riley	k township.
1 2 3 4	Name. Durham Catholic Township Com. Am. Mennonites Lutherans	Acres. 4 4 4 2 2	Durham Par Fair Play Grant Riley	k township.
1 2 3 4	Name. Durham	Acres. 4 4 2 2 16	Durham Par Fair Play Grant Riley	k township.
1 2 3 4 5	Name. Durham	Acres. 4 4 2 2 16	Durham Par Fair Play Grant Riley	k township.
1 2 3 4 5	Name. Durham	Acres. 4 4 2 2 16 INTY. Acres.	Durham Par Fair Play Grant Riley	k township.
1 2 3 4 5	Name. Durham Catholic Township Com. Am. Mennonites Lutherans Total MARSHALL COU Name. German Lutheran	Acres. 4 4 4 2 2 16 ONTY. Acres. 8	Durham Par Fair Play Grant Riley " Location Balderson to	k township.
1 2 3 4 5 No. 1 2	Name. Durham Catholic Township Com. Am. Mennonites Lutherans Total MARSHALL COU Name. German Lutheran Irving	Acres. 4 4 2 2 16 INTY. Acres. 8 5	Durham Par Fair Play Grant Riley " Location Balderson to Blue Rapids	k township.
1 2 3 4 5 No. 1 2 3	Name. Durham Catholic Township Com. Am. Mennonites Lutherans Total MARSHALL COU Name. German Lutheran Irving Blue Rapids	TY. Acres. 4 4 2 2 16 NTY. Acres. 8 5 30	Durham Par Fair Play Grant Riley " Location Balderson to Blue Rapids Blue Rapids	k township.
1 2 3 4 5 No. 1 2 3 4	Name. Durham Catholic Township Com. Am. Mennonites Lutherans Total MARSHALL COU Name. German Lutheran Irving	TY. Acres. 4 4 2 2 16 UNTY. Acres. 8 5 30 3	Durham Par Fair Play Grant Riley " Location Balderson to Blue Rapids	k township.
1 2 3 4 5 No. 1 2 3	Name. Durham Catholic Township Com. Am. Mennonites Lutherans Total MARSHALL COU Name. German Lutheran Irving Blue Rapids	TY. Acres. 4 4 2 2 16 NTY. Acres. 8 5 30	Durham Par Fair Play Grant Riley " Location Balderson to Blue Rapids Blue Rapids	wnship. city. ship. ownship.
1 2 3 4 5 No. 1 2 3 4	Name. Durham Catholic Township Com. Am. Mennonites Lutherans Total MARSHALL COU Name. German Lutheran Irving Blue Rapids Center Baptist	TY. Acres. 4 4 2 2 16 UNTY. Acres. 8 5 30 3	Durham Par Fair Play Grant Riley "Location Balderson to Blue Rapids Blue Rapids Center town	k township.
1 2 3 4 5 No. 1 2 3 4 5	Name. Durham Catholic Township Com. Am. Mennonites Lutherans Total MARSHALL COU Name. German Lutheran Irving Blue Rapids Center Baptist Mount Hope	TY. Acres. 4 4 2 2 16 INTY. Acres. 8 5 30 3 1	Durham Par Fair Play Grant Riley "Location Balderson to Blue Rapids Blue Rapids Center town Clear Fork to	wnship. city. ship. ownship.
1 2 3 4 5 No. 1 2 3 4 5 6	Name. Durham Catholic Township Com. Am. Mennonites Lutherans Total MARSHALL COU Name. German Lutheran Irving Blue Rapids Center Baptist Mount Hope Irish Creek Catholics. Evergreen	TY. Acres. 4 4 4 2 2 16 INTY. Acres. 8 5 90 3 1 10	Durham Par Fair Play Grant Riley "Location Balderson to Blue Rapids Blue Rapids Center town Clear Fork t	wnship. city. ship. wnship.
1 2 3 4 5 5 No. 1 2 3 4 4 5 6 7	Name. Durham Catholic Township Com. Am. Mennonites Lutherans Total MARSHALL COU Name. German Lutheran Irving Blue Rapids Center Baptist Mount Hope Irish Creek Catholics. Evergreen Elm Creek.	TY. Acres. 4 4 4 2 2 16 INTY. Acres. 8 5 90 3 1 10 9 2	Durham Par Fair Play Grant Riley "Location Balderson to Blue Rapids Blue Rapids Center town Clear Fork to Cleveland Cottage Hill Elm Creek	wnship. city. ship. wnship.
1 2 3 4 5 5 No. 1 2 3 4 5 6 7 8 9	Name. Durham Catholic Township Com. Am. Mennonites Lutherans Total MARSHALL COU Name. German Lutheran Irving Blue Rapids Center Baptist Mount Hope Irish Creek Catholics. Evergreen Elm Creek. Home City.	Acres. 4 4 4 2 2 16 INTY. Acres. 8 5 30 3 1 10 9 2 23	Durham Par Fair Play Grant Riley "" Location Balderson to Blue Rapids Blue Rapids Center town Clear Fork t Cleveland Cottage Hill Elm Creek Franklin	wnship. city. ship. wnship.
1 2 3 4 5 5 No. 1 2 3 4 5 6 7 8 9 10	Name. Durham Catholic Township Com. Am. Mennonites Lutherans Total MARSHALL COU Name. German Lutheran Irving Blue Rapids Center Baptist Mount Hope Irish Creek Catholics. Evergreen Elm Creek. Home City. Beattie.	Acres. 4 4 4 2 2 16 INTY. Acres. 8 5 30 3 1 10 9 2 2 10	Durham Par Fair Play Grant Riley "" Location Balderson to Blue Rapids Blue Rapids Center town Clear Fork t Cleveland Cottage Hill Elm Creek Franklin Guittard	wnship. city. ship. ownship.
1 2 3 4 5 5 No. 1 2 3 4 5 6 7 8 9 10 11	Name. Durham Catholic Township Com. Am. Mennonites Lutherans Total MARSHALL COU Name. German Lutheran Irving Blue Rapids Center Baptist Mount Hope Irish Creek Catholics. Evergreen Elm Creek. Home City. Beattie. Bethlehem Cong.	Acres. 4 4 4 2 2 16 INTY. Acres. 8 5 30 3 1 10 9 2 2 10 5	Durham Par Fair Play Grant Riley "" Location Balderson to Blue Rapids Blue Rapids Center town Clear Fork t Cleveland Cottage Hill Elm Creek Franklin Guittard Herkimer	wnship. city. ship. ownship. '' '' '' ''
1 2 3 4 5 5 No. 1 2 3 4 5 6 7 8 9 10	Name. Durham Catholic Township Com. Am. Mennonites Lutherans Total MARSHALL COU Name. German Lutheran Irving Blue Rapids Center Baptist Mount Hope Irish Creek Catholics. Evergreen Elm Creek. Home City. Beattie.	Acres. 4 4 4 2 2 16 INTY. Acres. 8 5 30 3 1 10 9 2 2 10	Durham Par Fair Play Grant Riley "" Location Balderson to Blue Rapids Blue Rapids Center town Clear Fork t Cleveland Cottage Hill Elm Creek Franklin Guittard	wnship. city. ship. ownship. '' '' '' ''

MARSHALL COUNTY—concluded.

		concru	wew.	
No		Acres.	Locatio	
14	Axtell	8	Murray town	
15	St. Michael	4	44	"
16	Marysville	4 0	Marys ville	"
17	Catholic	4	44	"
18	Vermillion	4	Noble	4.6
19	Oketo	4	Oketo	"
20	Unnamed	20	Waterville	"
21	Life	1	Rock	"
22	Summerfield	10	St. Bridget	"
23	Frankfort	35	Vermillion	"
24	Riverside	15	Waterville	"
25	German Lutheran	1	Wells	"
26	Danish Lutheran	1	Walnut	"
27	Balderson	4 .	Balderson	4.6
28	Fairmount	1	Blue Rapids	46
29	Prospect Hill	40	"	"
30	Marshall Center	2	Center	"
31	Schroyer	3 .	Elm Creek	"
32	Fairview	11	Franklin	"
33	Catholic	10	Guittard	"
34	Immanuel	10	Herkimer	"
35	German Lutheran	1	Logan	"
36	Bohemian	2	66	"
37	Evangelical Lutheran	1	. 44	"
38	Deer Creek	5	Marysville	"
39	Swedish	2	Murray	"
40	Mission	4	**	"
41	Dunker	3	Richland	"
42	St. Bridget	5	St. Bridget	"
43	Gano	15	Vermillion	"
44	Barrett	1	**	44
45	Morrison	5	44	"
46	Mount Pleasant	5	Waterville	"
47	Kenyon.	2	"	"
48	Wilhite	2	44	"
	Total	358		

M'PHERSON COUNTY.

No.	Name.	Acres.	Location.	
1	Eureka	3	Township :	not given.
2	Roxbury	6	"	"
3	Lindsborg	20	66	"
4	Freemount	8	"	46
5	Stevens	1	**	**
6	Swedish Lutheran	5	**	**
7	Marquette	10	**	6.6
8	Oak	1	"	**
9	Swedish Lutheran	4	**	**

M'PHERSON COUNTY-concluded.

m Pherson County—concluded.				
No.	Name.	Acres.	Location	١.
10	West Kentuck	ŧ	Township no	ot given.
11	Fairview	5	• •	"
12	Excelsior	3	44	"
13	Fairview	2	44	"
14	Canton	10	44	"
15	Empire	2	**	"
16	McPherson	30	46	"
17	Conway	1	44	"
1 8	Canton Mennonite	10	66	"
19	Lone Tree	10	4.6	4.6
20	Empire	4	"	"
21	Westfield	5	44	"
22	German Baptist	3	**	"
23	Amish	2	**	"
24	West Liberty	2	66	"
25	New Andover	5	"	"
26	French Baptist	1	44	
27	Haldeman Mennonite	2	"	"
28	German Evangelical	1	66	44
29	Mound Township	4	44	"
30	Mennonite	3	44	"
31	Mennonite	1	"	"
32	Hoffnungfeld Church	15	"	"
33	Hoffnungfeld Mennonite	5	44	44
34	Zoar Mennonite	2	46	"
35	Mennonite German	2	"	44
36	Inman	10	46	"
37	Mennonite German	2	44	66
3 8	New Gottland	ł	**	"
39	Windom	1	44	44
40	Swedish Lutheran	4	66	"
41	German Lutheran	_	44	"
	Total			
		200		

Too many little plats.

MEADE COUNTY.

No.	Name.	Acres.	Location.	
1	Fowler	10	Fowler townsh	in.
2	Wilburn	11	46 66	-P.
3	Mertilla		Mertilla "	
4	West Plains	. 2	West Plains to	wnship
5	Graceland	40		"
	Belle Mead		11	"
7	Stone Schoolhouse	. 1	Odee	"
8	Atwater	. 1	Cimarron	"
	Total			

MIAMI COUNTY.

No.	Name.	Acres.	Locatio	n.
1	Mannen	1	Stanton tow	
2	Stanton	3	44	"
3	Hillsdale	2	Marysville	44
4	Marysville.	2		46
5	Ayers	_ 1	46	44
6	Moore	1	46	46
7	Bucyrus	3	Wea	44
8	Somerset	8		44
9	Wagstaff	3	Ten Mille	£
10	Wea Catholic	1		£ 4
11	Raymer	1	Middle Cree	k township.
12	Cushman	ī	"	66 66
13	Indian	ī	44	66
14	McNally	2	44	44
15	Highland	2	44	44
16	Hughs.	ī	46	66
17	Lessenden	ī	Osage	66
18	Indianapolis	ī	. "	44
19	Green Valley	ī	44	44
20	Catholic	5	Paola	44
21	Louisburg	8	Wea.	46
22	Paola	6	City.	
23	Osawatomie	4	"	
24	Fontana	4	Osage tow	nship.
25	Debruck.	4	"	66 66
26	Pleasant Valley	4	Richland	66
27	Rock Creek	4	66	**
28	Antioch	4	44	46
29	Scott Valley	4	**	44
30	Casida	2	Marysville	44
31	New Hope	1	Stanton	44
32	Romille	1	Sugar Creek	**
33	Jingo	<u>1</u>	44	**
34	New Lancaster	1	Miami	**
35	Block Lutheran	1	Valley	**
-	Total	86 <u>1</u>		
		002		
	Foo many little ones.			•
	MITCHELL COU	NTY.		
No.	Name.	Acres.	Location	•
1	Greenwood	2	Logan towns	ship.
2	Simpson	5	" "	
3	Pleasant View	3	Bloomfield to	
4	Saltville	2	Salt Creek	44
5	Rose Valley	3	Hayes	44
6	Prairie Grove	10	Cawker	**
7	St. Peter and St. Paul's	6	44	44
8	Yankee	1	Carr Creek	**
• 9	Catholic	4	Pittsburg	"

MITCHELL COUNTY-concluded.

No.	Name.	Acres.	Location.
10	Asherville	3	
11	Frank Smith	1	
12	Lot Owen	. 1	
13	Gates	11	
14	Green Mound	. 1	
15	Shiloh	. 1	
16	New Hope	. 2	
17	Honey Creek	. 2	
18	Indian Creek		
19	Round Springs	21	
20	High Prairie	. 1	
21	Naomi	. 11	
22	Walnut Creek	. 1	
23	Fair View	. 1	
24	Excelsior	. 1	
25	Brown's Creek	. 2	
26	Glendale	_	
27	Glen Elder		
28	Glenwood.	. 5	
	Total	. 701	

MONTGOMERY COUNTY.

No.	Name.	Acres.	Location.	
1	Oak Hill	9	Louisburg to	wnship.
2	Parker	3	"	"
3	Woodring	2	46	44
4	White	2	44	44
5	Black Jack	3	Caney	46
6	Havana	5	"	**
7	Murphy	1	Sycamore	"
8	Clavenger	1	"	"
9	Farm Ridge	1	"	**
10	Simpson	1	"	"
11	Krone	1	"	"
12	Mount Hope	40	Independence	township.
13	Harrisonville	2	- 44	"
14	Point	. 3	Fawn Creek	**
15	St. Andrews	18	West Cherry	**
16	Chouteau	1	46	**
17	Catholic	5	Cherry	
18	Fairview	20	44	44
19	Harmony	5	Drum Creek	"
20	Liberty	3	Liberty	"
21	St. Joseph	2	44	**
22	Old Parker	5	Cherokee	4.6
23	Fairview	80	Parker	**
24	Smith	1 1	Not given.	
25	Marshall	2	"	
2 6	Robbins	3	Fawn Creek	township.
27	Quaker	1_	Rutland	"
	Total	2151		

Too many little ones.

MORRIS COUNTY.

No.	Name.	Acres.	Location.	•
1	Wilsey	5	Elm Creek tow	nship.
2	Montio	3	66	"
3	Delavan	5	Grandview	66
4	Mitchell Valley	2	"	"
5	Garfield	1	Warren	"
6	Dunlap	4	Valley	"
7	Dunlap (colored)	6	"	"
8	Marion Hill	4	Parker	"
9	Masons'	10	44	44
10	Colored	1	44	"
11	Dwight	5	Ohio	"
12	Morris	2	• •	"
13	Four Mile	3	Four Mile	"
14	Swedish	2	Diamond Valley	"
15	Swedish M. E	2	46	"
16	Evang. Luth	2	. 66	"
17	Diamond Springs	2	44	"
	Total	59		

MORTON COUNTY.

No.	Name.	Acres.	Location.
1	Grand View	40	Richfield township.

"There is also an old cemetery near what was once the town of Frisco, about four miles from Richfield. I think there are probably some ten or twelve graves still there. Quite a number of those formerly buried there have been moved to one place and another. . . . There is nothing there to locate it by except the mounds—more strictly speaking, the low places where they have sunken in—and cattle run over it the same as all other grounds.

"Near what was formerly Taloga there is a cemetery, where there are still a number of tombstones, etc. This is supposed to be fenced, but cattle have torn down the fence, and run through and over it about the same as the other. Possibly some fifteen or more graves there. . . .

"There were graves here and there over the county, one or two in a place, but most of these, I think, have been exhumed and reinterred. . . . The one [cemetery] at Richfield is the only one used nowadays. Think it is the only one that has been used for possibly ten years past. In this one, the whole forty acres is fenced in reasonably good shape, and stock not allowed to run through it, and most of the graves are kept in good condition. There are quite a good many real nice tombstones there.

"February 14, 1906.

SAM. M. DEAN, County Clerk."

NEMAHA COUNTY.

No.	Name.	Acres.	Location	n.
1	Brewer	1	Clear Creek	township.
2	Clear Creek	2	"	"
	Baileyville	6	Marion	"
	Centralia	5	Home	"

NEMEHA COUNTY-concluded.

	NEMEHA COUNTY—	conciua	ea.	
No.	Name.	Acres.	Location.	
5	Neuchatel	5	Neuchatel town	nship.
6	Coal Creek	4	44	"
7	Mulberry	1	46	"
8	St. Benedict	5	Richmond	"
9	Seneca	15	66 ·	"
			"	"
10	St. Mary's		44	44
11	Hicks	1		"
12	Dennis	1	Mitchell	
13	Roots	3	Illinois	"
14	America City	3	Red Vermillion	"
15	Bern	2	Washington	"
16	Oneida	2	Gilman	44
17	Ford	2	Adams	"
18	Fairview	1	Harrison	"
19	Rock Creek	1	Berwick	44
20	R. C. Dunker.	1	46	"
		4	46	"
21	Albany	_	D - 1 C 1	44
22	Sabetha	10	Rock Creek	"
23	Capioma	3	Capioma	
24	St. Augustine	4	**	44
25	Woodlawn	1	"	• •
26	Granada	3	Granada	**
27	Barnes	2	44	41
28	Ontario	2	Wetmore	"
29	Wetmore	4	66	4.6
30	St. Peter and St. Paul	_	Richmond	"
31	Corning	6	Illinois	**
		1	Harrison	"
32	Harris.	_	Harrison	**
33	Kelley Catholic	4	••	••
	Total	119		
•	Too many little ones.		•	
	NEOSHO COUN		.	
No.	Name.	Acres.	Location.	
1	James	_ŧ	Grant township).
2	Mount Moriah		Big Creek "	
3	Putnam	1	Tioga	
4	Odense	2	Canville "	
5	Leanna	2	Erie "	
6	No name	10	Walnut Grove t	ownship.
7	No name	3	Centerville	66
8	No name	10	Lincoln	"
-	Total	331		
	TOM1	ೲೱ		
	MEGG COTTO	nv		
N-	NESS COUNT Name.	Acres.	Location	
No. 1	Utica	Acres.	Location.	
_		-	Ohio township.	
2	Prairie Chapel	1		1. 2
3	Forester	5	Forester towns	nip.

NESS COUNTY—concluded.

NESS COUNTY—concluded.			
No.	Name.	Acres.	Location.
4	Ransom	4	Nevada township.
5	Cyrus	1	"
6	Catholic	1	"
7	Beeler	2	Eden "
8	Harold		Franklin "
9	Chenoweth	••••	" "
10	P. Snyder	• • • •	"
	•	• • • •	"
11	Unnamed		
12	Forest Hill	2	High Point "
13	Crandall	1	
14	Winchester	5	
15	Pleasantview	5	Center
16	Ness City	5	"
17	No name	1	Franklin "
18	No name	1	High Point "
19	Riverside	1	Utica village.
20	Ignatz	5	Ohio township.
21	Buda	5	Waring "
22	Amish	80	Not given.
	Total	48 ₈₀	G
		-FOE 0.	
Area of four not given; all too small.			
	NORTON COUN		
No.		Acres.	Location.
1	Almena	10	Almena township.
2	Rayville	2	•
3	Norton	20	Center
4	Norcatur (118 lots)	• • • •	Rockwell "
5	Maple Grove (4 blocks)	• • • •	"
6	Mount Olive	2	Highland "
7	Oronoque	$2\frac{1}{2}$	Leota "
8	Edmond	5	Solomon "
9	Lenora	3	Lenora "
10	Lenora Catholic	2	"
11	Densmore	2	West Union "
12	Devizes	2	Rock Branch "
13	St. Joseph	24	New Almelo "
14	St. Francis	14	West Union "
15	Gettis	1	Noble "
16	Sheely	5	Harrison "
	Total	801	
		OVE	
	Too many little ones.		
	OSAGE COUN	TY.	
No.	Name.	Acres.	Location.
1	Oak Hill	-	Agency township.
2			
_	Curry		Arvonia "
3	Humphrey	2	Barclay "
_		2	Arvonia

OSAGE COUNTY-concluded.

No.	Name.	Acres.	Location.	
5	Overbrook	. 5	Elk township.	
6	Ridgeway	. 5	Fairfax	"
7	Unnamed	. 1	Grant	"
8	Valley Brook	. 4	Junction	"
9	Evangelical	1*	"	**
10	Union	. 3	Lincoln	"
11	Central	. 2	Melvern	"
12	Melvern	. 10	Olivet	"
13	Carbondale	. 5	Ridgeway	"
14	Scranton	. 5	• ••	"
15	Scranton (?)	. 6	Scranton	"
16	Osage City	. 20	Superior	"
17	Lyndon	. 10	Valley Brook	4.6
18	Knough	. 1	"	"
19	Arvonia	. 10	Arvonia	"
20	No name	. 2	Barclay	"
21	Maple Grove	. 21	Grant	"
22	Neill	. 1	Junction	"
23	Wilder	. 3	Olivet	"
24	Alpine	. 3	"	• •
25	Olivet	. 3	Olivet city.	
26	Dane	1	Valley Brook	township.
	Total	1271		

OSBORNE COUNTY.

No.	Name.	Acres.	Location	n.
1	Downs	. 11	Ross townsl	hip.
2	Bethany Center	. 2	Bethany tov	vnship.
3	Fairview	. 21	Lawrence	"
4	Grant	. 2	Grant	"
5	Pleasant Valley	. 11	Sumner	"
6	Hahn		Tilden	"
7	Osborne	. 8	Penn	• .
8	South Solomon	. 4	"	66
9	Zimmerman	. 1	Hancock	44
10	Mount Hope	. 2	Kill Creek	"
11	Potterville	. 1	Winfield	"
12	Delhi	3	Delhi	"
13	Grand Center	. 4	Valley	"
14	Vincent	. 2	"	"
15	Natoma	. 6	Natoma	"
16	Lawrence Creek	. 1	Lawrence	"
17	Bloomington	. 7	Grant	"
18	Guyer	. 5	Sumner	"
19	Baker	. 1	Tilden	"
20	Kill Creek	. 1	Penn	"
21	Friends	4	Bloom	"
22	Methodist	. 2	Hancock	"

OSBORNE COUNTY—concluded.

	OSBORNE COUNTY—c	onciud	ed.
No.	Name.	Acres.	Location.
23	Culver	14	Independence township.
24	Brethren	2	Kill Creek "
25	Blue Ridge	1	Mount Ayr
26	Covert	ī	Round Mound "
20			Itouna mouna
	Total	80 8	
	Foo many little ones.		
	OTTAWA COUN	TY.	
No.	Name.	cres.	Location.
1	Bennington	3	Bennington township.
2	Crown Point	2	" "
3	Pleasant Hill	3	Buckeye "
4	Melville	2	Chapman "
5	Fairview	3	Fountain "
6	First Creek.	ĭ	"
7	Pleasant Hill	2	Grant "
8	Halls	6	Logan "
9	Culver.	5	Morton "
10	Fuller	5	Sherman "
11	Unnamed.	4 2	Sheridan "
12	Bohemian	1	Stanton "
13	Highland	10	
14			Minneapolis city.
	Vine Creek	5	Ottawa township.
15	St. Patrick	5	
16	Catholic	5	Garneid
17	Greenville	1	Tillcom
18	Union	2	Morton "
19	Price	2	
20	Franklin	5	Ottawa "
	Total	73	
	PAWNEE COUN	TY.	•
No.	Name.	Acres.	Location.
1	Brown's Grove	10	Brown's Grove township.
2	Larned	40	Pawnee "
3	Garfield	10	Garfield "
4	Pratt	14	Pleasant Valley "
5	Point View	4	Logan
6	Ash Valley	2	Ash Valley "
•	Total	671	iiii , anoy
	10001	019	
	DITT I IDA AAT	NW	
N * -	PHILLIPS COU		Formal
No.		Acres.	Location.
1 2	Pleasant Valley	21	Arcade township.
_	St. Peter	2	Beaver
3	Belmont	5	Belmont "
4	Lutheran	2	
5	Bow Creek	2	Bow Creek "

Cemeteries.

PHILLIPS COUNTY—concluded.

No.	Name.	Acres.	Locatio	on.
6	Matteson	ł	Dayton town	ship.
7	Hillsdale	1	Deer Creek	"
8	Pleasant Ridge	1	Glenwood	"
9	Woodruff	2	Granite	44
10	Pleasant Hill	11	Greenwood	44
11	Plummer	2	"	44
12	Logan	40	Logan	"
13	Long Island	71	Long Island	**
14	Agra	2	Plum	
15	West Cedar	2	44	**
16	Luctor	3	Prairie View	**
17	Prairie View	2	66	**
18	Lockwood	1	Rushville	"
19	Myrtle	1	Walnut	"
20	Kirwin	4 0	Kirwin city.	
21	Fairview	20	Logan towns	h ip.
22	Marvin	3	Prairie View	township.
23	Heth	2	Rushville	"
	Total	1441		

Too many little plats.

POTTAWATOMIE COUNTY.

	IOIIAWAIOMIE COUNII.				
No.	Name.	Acres.	Location.	•	
1	Spring Creek	31	Spring Creek	township.	
2	Belgard	2	Blue Valley	46	
3	Olsburg	3	46	"	
4	Mariadahl		66	"	
5	Carnahan Creek	5	Green	46	
6	Garrison	2	66	"	
7	St. Clere	2	St. Clere	"	
8	Jenkins	1	Vienna	"	
9	Havens	2	Grant	4.	
10	Oak Grove	1	Union	"	
11	Pleasant Hill	2	Lone Tree	44	
12	Westmoreland (old)	3	Pottawatomie	4.6	
13	Westmoreland City	5	44	"	
14	Ad-Martha	2	44	44	
15	Pleasant Run	1	44	"	
16	Catholic (including church)	5	"	"	
17	Louisville City	5	Louisville	"	
18	Poor-farm	1	"	"	
19	Wamego City	5	Wamego	"	
20	Catholic	5	"	"	
21	Catholic (including church)	5	Blue	"	
22	Catholic		Clear Creek	"	
23	First Baptist	3	"	"	
24	Cedar Hill	14	6-6	"	
25	Reserville	_	44	66	

POTTAWATOMIE COUNTY-concluded.

No.	Name.	Acres.	Location	
26	Maple Grove	6	Clear Creek to	wnship.
27	St. George	5	St. George	"
28	Belvue	5	Belvue	44
29	Pollus Creek	2	66	"
30	St. Marys Public	5	St. Marys	4.6
31	St. Marys Catholic	5	"	66
32	Holy Cross (including Catholic)	5	Emmett	"
33	Fair Mount	3	Lincoln	4.6
34	Wheaton	3	Lone Tree	4.6
3 5	Rock Creek	1	Rock Creek	44
36	Pleasant Ridge	1	"	"
37	Onaga City	5	Mill Creek	"
38	Catholic	1	44	"
39	Mound Creek	2	"	"
4 0	St. Paul	1	46	"
41	Laclede	2	Center	4.6
42	Adams Peak	1	Shannon	44
43	Arispie	5	Sherman	4.6
44	St. Luke's	2	44	44
4 5	Shehi		Spring Creek	46
46	Huff	1	Rock Creek	4.5
47	Moodyville	2	"	4.6
4 8	Fairview	2	Lincoln	4.6
49	Vienna	11	Vienna	"
50	Elbow	3	Blue	4.6
51	Cedar Creek	$2\frac{1}{2}$	"	"
52	W. H. Line	• • • •	Louisville	"
	Total	1441		

All too small; whole fifty-two average only three acres.

PRATT COUNTY.

No.	Name.	Acre	s.	Location.	
1	Pleasant Valley		1	Haynesville to	ownship.
2	Cairo		3	McPherson	"
3	Saratoga	. 2	0	Saratoga	"
4	Greenlawn	. 3	0	Center	"
5	Elmwood	. :	2	Paxon	"
6	Unnamed		2	Carmi	"
7	Haynesville		2	44	"
8	Friendship		2	44	44
9	Coates		1	Grant	66
10	Jenkins		2	44	"
	Total	6	5		

RAWLINS COUNTY.

No.	Name.	Acres.	Loca	tion.
1	Fairview	. 5	Atwood t	ownship.
2	Chardon	. 1	Arbor	"
3	Enterprise	. 1	Beaver	**
4	Eng. Swedish Lutheran	. 2	Laing	44
5	Mission Friend	. 2	**	4.6
6	Swedish Baptist	. 2	"	44
7	Logan		Logan	44
8	Rose Hill	. 10	Ludwell	"
9	Herndon	. 4	Richland	"
10	Catholic	. 4	"	"
11	Lutheran	. 4	"	44
12	Shuck	. 2	Rotate	"
13	Pleasant View	. 10		
14	Achilles	. 3		
	Total	. 52		

One ugly name, "Shuck."

RENO COUNTY.

	RENO COUN	TY.		
No.	Name.	Acres.	Location	n.
1	Lone Star	. 5		vnship.
2	Mennonite	. 3	44	"
3	School Ground	. 7	"	"
4	Arlington	. 6	Arlington	"
5	Amish	. 1	Center	"
6	Reno Center	. 2	"	"
7	Williams—family	. 1	Grant	44
8	Huntsville	. 2	Huntsville	"
9	Maple Grove	. 3	Langdon	"
10	Old Langdon	. 2	"	"
11	Mennonite	. 1	Little River	
12	Little River	. 2	"	"
13	Sego	. 4	Loda	"
14	Pleasant Hill	. 2	66	" "
15	Turon	. 4	Miami	"
16	Pleasant Hill	. 3	Ninnescah	4.6
17	Hazen	. 5	Plevna	• 6
18	Plevna	. 3	66	"
19	Sumner	. 1	Sumner	٠.
20	Antioch	. 1	44	"
21	St. Joseph	. 3	44	"
22	I. O. O. F	. 4	Sylvia	66
23	Valley	. 2	Valley	"
24	Abbyville		Westminste	r "
25	Westminster	. 3	"	44
26	Fairview	. 2	Arlington	"
27	Partridge		Castleton	"
28	Mitchell		Clay	"
29	Priest	. 3	Enterprise	"

	RENO COUNTY—concluded.			
No.	Name.	Acres.	Loca	tion.
30	Laurel	3	Grant town	ship.
31	Amish Mennonite	1	Haven	**
32	G. M. E	2	Hayes	44
33	Letheman	1	Medford	**
34	Jacob Run	븅	Sumner	44
35	South Side	2	Roscoe	\$6
36	Troy	1	Troy	**
37	Peace Valley	4	Walnut	44
3 8	Mennonite	1_	Westminst	er ''
	Total	941		
	All too small; average less than three a	cres.		
	, ,			
	REPUBLIC COU	NTV		
No.	•	cres.	Locatio	an .
1	Maple Grove	2	Albion tow	
2	Ada	3		"
3	German Baptist	41	Belleville	44
4	Grace Hill	2		66
5	Poor-farm	2	66	"
6	Harkness	1	46	**
7	Lake	7	Big Bend	**
8	Rose Mound	2		"
9	Courtland	10	Courtland	**
10	Maxwell.	5	"	"
11	New Tabor	4	Fairview	
12	Pachta	4	46	"
13	Farmington	3	Farmington	n township.
14	Mill Creek	2	"	. "
15	St. Joseph	3	Freedom	"
16	Spring Hill	1	**	44
17	Fairview	3	Grant town	ship.
18	Rose Hill	21	"	•
19	Zion	2	• •	•
20	Pleasant View	2	Jefferson	township.
21	Liberty	4	Liberty	"
22	Fairview	1	Norway	44
23	Valley Center	2	"	44
24	Oak Dale	3	44	46
25	Norway	1	"	46
26	Catholic	10	Richland	44
27	Union	2	"	44
2 8	Bohemian Union	2	"	6.6
29	Bohemian	1	44	44
3 0	Register	2	Rose Creek	
31	Ida	6	"	44
32	Hubbell	4	"	44
33	River View	10	Scandia	44
34	Swedish Lutheran	1	44	"

REPUBLIC COUNTY—concluded.

No.	Name.	Acres.	Locat	ion.
3 5	Poplar Grove	1	Scandia to	wnship.
36	Union Valley	2	Union	4.6
37	Rose Mound	3	46	44
38	Washington	4	Washington	"
39	Mount Pleasant	3	White Rock	66
40	White Rock	2	44	"
41	Haworth	3	Farmington	"
42	C. S. H. S	2	"	"
43	Becks	2	Norway	"
44	Milner	4	Jefferson	"
45	Fairview	1	Grant	"
46	Pleasant Ridge	1	**	46
47	Lincoln	1	White Rock	"
4 8	Gritten	1	"	"
	Total	1408		

All too small; average three acres.

RICE COUNTY.

No.	Name.	Acres.	Location.
1	Salem	. 5	Farmer township.
2	Bushton	. 3	Eureka ''
3	Wesley Chapel	2	Victoria ''
4	Geneseo	. 5	Galt "
5	Frederick	. 3	Union "
6	Liscum.	1	Mitchell "
7	Graceland	. 25	Harrison "
8	Springdale	. 5	Lincoln "
9	Ebenezer.	. 4	Pioneer "
10	Forest Home	. 4	Center "
	Total	97	

RILEY COUNTY.

No.	Name.	Acres.	Loca	tion.
1	Swedish Evangelical Lutheran	3	Bala to	ownship.
2	May Day	2	Center	"
3	Winkler	1	"	"
· 4	Lasita	11	Fancy Cree	k ''
5	Pleasant Hill	1	"	4.6
6	District No. 55	1	"	4.6
7	Mill Creek,	2	Grant	"
8	Randolph	6	Jackson	"
9	Fancy Creek	5	"	"
10	Manhattan		Manhattan	44
11	Peach Grove	1	May Day	"
12	German Evangelist	1	"	44
13	Ogden	4	Ogden	"
14	Ogden Catholic	6	٠.,	"

Kansas State Horticultural Society.

	RILEY COUNTY—co	nclude	d.	
No. 15 16 17	Name. Valley Grant Zeandale Total	2 1 40	Locate Ogden tow Wild Cat Zeandale	
	ROOKS COUNT	FY.		
No. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 22 3 24	Name. Mount Vernon Webster. Wills. Prairie Lawn Corning Aurora Stockton. Rooks Center. West Hope Protestant. Catholic Groves Chalk Mound Palco. Fairview Green Mound Plainville. Catholic Stockton Catholic Twin Mound. Ash Rock Spring Branch Hopewell.	Acres. 3 5 1 2 3 4 15 1 2 1 4 3 5 1 4 2 1 5 3 5 1 4 2	Location Belmont tow "Bow Creek "Corning "Iowa Lowell Lanark Logan "Medicine "Northamptor "" Paradise "" Stockton "Twin Mound Ash Rock "Hobart	rnship.
25 26 27 28	Paradise Center East Paradise Catholic Catholic Total	11 2 3 2 81 4 81 4	Paradise '' Plainville Richland	66 66 66
	RUSH COUNT	Y.		
No. 1 2 3 4 5 6 7 8 9	Name. McCracken	Acres. 10 1 2 6 4 2 2 2 2	Location Alexander to Banner Big Timber Center La Crosse Pioneer	

Cemeteries.

RUSH COUNTY-concluded.

No.	Name.	Acres.	Location.
10	Union Township	5	Union township.
11	Sand Creek	11	Brookdale ''
12	Halls	11	ce 66
13	German M. E	2	Lone Star "
14	German M. E	2	Pioneer "
15	German Lutheran	2	46 46
16	German Baptist	2	"
	Total	47	
	RUSSELL COU	NTY.	
No.	Name.	Acres.	Location.
1	Blue Stem	••••	South of Lucas; used for years before removed.
2	Russell		City block No. 17; rem'd.
3	Elm Creek Schoolhouse	••••	Two graves near section corner.
4	Emanuel Lutheran Church	ŧ	A church, and perhaps a cemetery.
5	German Lutheran Emanuel	2	May include a cemetery.
6	Well caved in on man; body still there		
7	Baby buried		Spotunknown; on sec. 13.
8	Odd Fellows	5	-
9	Luray	5	
10	Waldo	3	Waldo township.
11	Amherst	2	66 66
12	Mount Hermon	2	Paradise "
13	Fairport	5	** **
14	West Fairview	2	
15	Bunker Hill	5	
16	Russell	20	Russell township.
17	German Lutheran	2	**
18	Hyde Park	2	
19	Blooming Grove	ž	
20	United Brethren	1	
21	Dunkers	1	
22	St. Mary's	5	Big Creek township.
23	Prairie Lawn	6	**
24	Dorrance	1	
25	German Baptists	1	Fairfield township.

1

ğ 210

3¹

Winterset township.

Plymouth township.

All but two are too small.

29

31

32

Cross Plain.... 27 Ebenezer M. E.....

Trinity Congregational

Evangelical Lutheran Emanuel......

Morgenstein..... 33 German Baptist

Total

30 Emanuel Gemeinde..... Winterset

SALINE COUNTY.

			- · · ·
No.	Name.	Acres.	Location.
1	Highland	4	Cambria township.
2	Catholic	4	Dayton
3	Shiloh	2	Elm Creek "
4	Hambarger	11	**
5	Pleasant Hill	10	Glendale "
6	Gypsum City	5	Gypsum "
7	Private	$1_{r^{\prime s}}$	Liberty "
8	County	2	Ohio "
9	Beverhin	_ _	"
10	Bavaria	3	**
11	Wolf	10	Pleasant Valley twp.
12	Swedish Lutheran	7	•
	Swedish Lutheran Association		Smoky View township
13		8	44 44
14	Swedish Mission Rh	4	
15	English Methodist Episcopal	1	
16	Salemsburg Mission	2	Smolan "
17	Poheta	4	Solomon "
18	Brookville	7	Spring Creek "
19	Rupert	2	Summit "
20	Not named	35	Greeley "
21	Walnut Hill	2	Pleasant Valley "
22	Rose Hill	2	Smoky View "
23	Bridgeport	21	44 44.
24	Assaria	7	Walnut township.
	•		wante comming.
		10511	
	Total	125]]	•
			•
	SCOTT COUNT	Y.	•
No.	SCOTT COUNT	Y. Acres.	Location.
1	SCOTT COUNT Name. Pence	Y. Acres 10	Beaver township.
	Name. Pence	Y. Acres.	Beaver township. Isbel "
1	SCOTT COUNT Name. Pence	Y. Acres 10	Beaver township. Isbel " Keystone "
1 2	Name. Pence	Y. Acres 10 2	Beaver township. Isbel " Keystone " Scott "
1 2 3	Name. Pence	Y. Acres 10 2 2	Beaver township. Isbel " Keystone "
1 2 3 4	Name. Pence	Y. Acres 10 2 2 5	Beaver township. Isbel " Keystone " Scott "
1 2 3 4 5	Name. Pence	Y. Acres 10 2 2 5 6 4	Beaver township. Isbel " Keystone " Scott " Valley "
1 2 3 4 5	Name. Pence	Y. Acres 10 2 2 5 6	Beaver township. Isbel " Keystone " Scott " Valley "
1 2 3 4 5	Name. Pence	Acres	Beaver township. Isbel " Keystone " Scott " Valley "
1 2 3 4 5 6	Name. Pence	Y. Acres	Beaver township. Isbel " Keystone " Scott " Valley " Valley "
1 2 3 4 5 6	SCOTT COUNT Name. Pence	Y. Acres	Beaver township. Isbel " Keystone " Scott " Valley " Valley " Location.
1 2 3 4 5 6	Name. Pence	YY. Acres. 10 2 5 6 4 29 NTY. Acres. 2	Beaver township. Isbel " Keystone " Scott " Valley " Valley " Location. Afton township.
1 2 3 4 5 6 No. 1 2	SCOTT COUNT Name. Pence	YY. Acres. 10 2 5 6 4 29 NTY. Acres. 2 6	Beaver township. Isbel "Keystone "Scott "Valley "Valley "Location. Afton township. Attica "
1 2 3 4 5 6 No. 1 2 3	Name. Pence	YY. Acres. 10 2 5 6 4 29 NTY. Acres. 2 6 1	Beaver township. Isbel "Keystone "Scott "Valley "Valley "Location. Afton township. Attica "Delaware "
1 2 3 4 5 6 No. 1 2 3 4	Name. Pence	YY. Acres. 10 2 5 6 4 29 NTY. Acres. 2 6 1 3	Beaver township. Isbel " Keystone " Scott " Valley " Valley " Location. Afton township. Attica " Delaware " Eagle "
1 2 3 4 5 6 No. 1 2 3 4 5	Name. Pence	YY. Acres. 10 2 5 6 4 29 NTY. Acres. 2 6 1 3 3	Beaver township. Isbel " Keystone " Scott " Valley " Valley " Location. Afton township. Attica " Delaware " Eagle " Grant "
1 2 3 4 5 6 No. 1 2 3 4 5 6	Name. Pence	YY. Acres. 10 2 5 6 4 29 NTY. Acres. 2 6 1 3 3 5	Beaver township. Isbel " Keystone " Scott " Valley " Valley " Location. Afton township. Attica " Delaware " Eagle " Grant " "
1 2 3 4 5 6 6 No. 1 2 3 4 5 6 7	Name. Pence	YY. Acres. 10 2 5 6 4 29 NTY. Acres. 2 6 1 3 5 3	Beaver township. Isbel " Keystone " Scott " Valley " Valley " Location. Afton township. Attica " Delaware " Eagle " Grant " " Greeley "
1 2 3 4 5 6 No. 1 2 3 4 5 6 7 8	Name. Pence	YY. Acres. 10 2 5 6 4 29 NTY. Acres. 2 6 1 3 5 3 4	Beaver township. Isbel " Keystone " Scott " Valley " Valley " Location. Afton township. Attica " Delaware " Eagle " Grant " " Greeley " Gypsum "
1 2 3 4 5 6 6 No. 1 2 3 4 5 6 7	Name. Pence	YY. Acres. 10 2 5 6 4 29 NTY. Acres. 2 6 1 3 5 3 4 1	Beaver township. Isbel " Keystone " Scott " Valley " Valley " Location. Afton township. Attica " Delaware " Eagle " Grant " " Greeley " Gypsum " Illinois "
1 2 3 4 5 6 No. 1 2 3 4 5 6 7 8	Name. Pence	YY. Acres. 10 2 5 6 4 29 NTY. Acres. 2 6 1 3 5 3 4 1 5	Beaver township. Isbel " Keystone " Scott " Valley " Valley " Location. Afton township. Attica " Delaware " Eagle " Grant " " Greeley " Gypsum " Illinois " "
1 2 3 4 5 6 6 No. 1 2 3 4 4 5 6 7 8 9	Name. Pence	YY. Acres. 10 2 5 6 4 29 NTY. Acres. 2 6 1 3 5 3 4 1	Beaver township. Isbel " Keystone " Scott " Valley " Valley " Location. Afton township. Attica " Delaware " Eagle " Grant " " Greeley " Gypsum " Illinois "

Cemeteries.

SEDGWICK COUNTY-concluded.

	SEDUNICA COUNTI-	CUMULA	vou.	
No.	Name.	Acres.	Logation	n.
12	Clearwater	3	Ninnescah tov	vnshin.
13		3	44	44
	Ruby		01.1	"
14	Unnamed	1	Ohio	
15	German Lutheran	2	Payne	**
16	German M. E	5	ii	"
17	Salem	31	Salem	66
		-		"
18	Catholic	7	Sherman	
19	St. Marks	2	Union	44
20	Colwich	5	46	66
21	Peotone	28	Viola	**
22			44	44
	Viola	11/2		44
23	Greenwood	5	Waco	**
24	Maple Grove	74	Wichita	"
25	Highland	26	44	44
26	Goddard	5	Attica	66
		Ξ.		"
27	Mulkey	11	Garden Plain	
28	German Lutheran	3	Grand River	- 66
29	Cheney	2	66	44
30	Green Valley	••••	Lincoln	44
				"
31	Waco		Salem	••
	Total	1941		
	Too many little ones.			
	SEWARD COU	NTY.		
No.	SEWARD COUL	NTY. Acres.	Locatio	m.
	Name.	Acres.	Lecatio	
1	Name. Arkalon	Acres.	Lecution Township not	
	Name. Arkalon	Acres.		
1	Name. Arkalon	Acres.		
1	Name. Arkalon	Acres. 5 10		
1	Name. Arkalon	Acres. 5 10 15		
1 2	Name. Arkalon	Acres. 5 10 15 NTY.	Township not	given.
1 2 No.	Name. Arkalon	Acres. 5 10 15 NTY. Acres.		given.
1 2	Name. Arkalon	Acres. 5 10 15 NTY. Acres.	Township not	given.
1 2 No.	Name. Arkalon	Acres. 5 10 15 NTY. Acres. 4	Township not	given.
1 2 No. 1 2	Name. Arkalon Liberal Total SHAWNEE COU Name. Valencia. Dover	Acres. 5 10 15 NTY. Acres. 4 2	Location Dover towns	given.
1 2 No. 1 2 3	Name. Arkalon Liberal Total SHAWNEE COU Name. Valencia. Dover. Prairie Home.	Acres. 5 10 15 NTY. Acres. 4 2 4	Location Dover towns "" Menoken ""	given.
1 2 No. 1 2 3 4	Name. Arkalon Liberal Total SHAWNEE COU Name. Valencia. Dover. Prairie Home. Mount Calvary.	Acres. 5 10 15 NTY. Acres. 4 2 4 5	Location Dover towns "" Menoken " Mission "	given.
1 2 No. 1 2 3	Name. Arkalon Liberal Total SHAWNEE COU Name. Valencia. Dover. Prairie Home. Mount Calvary. Mission Center	Acres. 5 10 15 NTY. Acres. 4 2 4 5 3	Location Dover towns "" Menoken " Mission " ""	given.
1 2 No. 1 2 3 4	Name. Arkalon Liberal Total SHAWNEE COU Name. Valencia. Dover. Prairie Home. Mount Calvary.	Acres. 5 10 15 NTY. Acres. 4 2 4 5 3	Location Dover towns "" Menoken " Mission "	given.
No. 1 2 3 4 5 6	Name. Arkalon Liberal Total SHAWNEE COU Name. Valencia. Dover. Prairie Home. Mount Calvary. Mission Center Catholic	Acres. 5 10 15 NTY. Acres. 4 2 4 5 3 10	Location Dover towns "" Menoken " Mission " "" "" "" "" ""	given.
No. 1 2 3 4 5 6 7	Name. Arkalon Liberal Total SHAWNEE COU Name. Valencia. Dover Prairie Home. Mount Calvary. Mission Center Catholic Rossville.	Acres. 5 10 15 NTY. Acres. 4 2 4 5 3 10 5	Location Dover towns "" Menoken " Mission " "" "" Rossville ""	given.
No. 1 2 3 4 5 6 7 8	Name. Arkalon Liberal Total SHAWNEE COU Name. Valencia. Dover Prairie Home. Mount Calvary. Mission Center Catholic Rossville. Olive Branch	Acres. 5 10 15 NTY. Acres. 4 2 4 5 3 10 5 3	Location Dover towns "" Menoken " Mission " "" Rossville ""	given.
No. 1 2 3 4 5 6 7	Name. Arkalon Liberal Total SHAWNEE COU Name. Valencia Dover Prairie Home. Mount Calvary Mission Center Catholic Rossville Olive Branch Bohemian	Acres. 5 10 15 NTY. Acres. 4 2 4 5 3 10 5 3 2	Location Dover towns "" Menoken " Mission " "" "" Rossville ""	given.
No. 1 2 3 4 5 6 7 8	Name. Arkalon Liberal Total SHAWNEE COU Name. Valencia. Dover Prairie Home. Mount Calvary. Mission Center Catholic Rossville. Olive Branch	Acres. 5 10 15 NTY. Acres. 4 2 4 5 3 10 5 3 2	Location Dover towns "" Menoken " Mission " "" Rossville ""	given.
No. 1 2 3 4 5 6 7 8 9	Name. Arkalon Liberal Total SHAWNEE COU Name. Valencia. Dover Prairie Home. Mount Calvary. Mission Center Catholic Rossville. Olive Branch Bohemian Walnut Hill	Acres. 5 10 15 NTY. Acres. 4 2 4 5 3 10 5 3 2 7	Location Dover towns "" Menoken " Mission " "" Rossville " "" "" ""	given.
No. 1 2 3 4 5 6 7 8 8 9 10 11	Name. Arkalon Liberal Total SHAWNEE COU Name. Valencia. Dover Prairie Home. Mount Calvary. Mission Center Catholic Rossville. Olive Branch Bohemian Walnut Hill Silver Lake	Acres. 5 10 15 NTY. Acres. 4 2 4 5 3 10 5 3 2 7 5	Location Dover towns "" Menoken " Mission " "" Rossville " "" Silver Lake	given.
No. 1 2 3 4 5 6 7 8 8 9 10 11 12	Name. Arkalon Liberal Total SHAWNEE COU Name. Valencia. Dover Prairie Home. Mount Calvary. Mission Center Catholic Rossville. Olive Branch Bohemian Walnut Hill Silver Lake Rochester	Acres. 5 10 15 NTY. Acres. 4 2 4 5 3 10 5 3 2 7 5 20	Location Dover towns "" Menoken "" Mission "" "" "" Silver Lake " Soldier	cownship.
No. 1 2 3 4 4 5 6 6 7 8 9 10 11 12 13	Name. Arkalon Liberal Total SHAWNEE COU Name. Valencia. Dover Prairie Home. Mount Calvary. Mission Center Catholic Rossville. Olive Branch Bohemian Walnut Hill Silver Lake Rochester Reform School.	Acres. 5 10 15 NTY. Acres. 4 2 4 5 3 10 5 3 2 7 5 20 1	Location Dover towns "" Menoken " Mission " "" "" Silver Lake " Soldier ""	cownship.
No. 1 2 3 4 5 6 7 8 8 9 10 11 12	Name. Arkalon Liberal Total SHAWNEE COU Name. Valencia. Dover Prairie Home. Mount Calvary. Mission Center Catholic Rossville. Olive Branch Bohemian Walnut Hill Silver Lake Rochester	Acres. 5 10 15 NTY. Acres. 4 2 4 5 3 10 5 3 2 7 5 20 1	Location Dover towns "" Menoken "" Mission "" "" "" Silver Lake " Soldier	cownship.
No. 1 2 3 4 4 5 6 6 7 8 9 10 11 12 13	Name. Arkalon Liberal Total SHAWNEE COU Name. Valencia. Dover Prairie Home. Mount Calvary. Mission Center Catholic Rossville. Olive Branch Bohemian Walnut Hill Silver Lake Rochester Reform School.	Acres. 5 10 15 NTY. Acres. 4 2 4 5 3 10 5 3 2 7 5 20 1	Location Dover towns "" Menoken " Mission " "" "" Silver Lake " Soldier ""	cownship.
No. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	Name. Arkalon Liberal Total SHAWNEE COU Name. Valencia. Dover Prairie Home. Mount Calvary. Mission Center Catholic Rossville. Olive Branch Bohemian Walnut Hill Silver Lake Rochester Reform School. Zion. Bauer	Acres. 5 10 15 NTY. Acres. 4 2 4 5 3 10 5 3 2 7 5 20 1 1 1	Location Dover towns "" Menoken " Mission " "" "" Silver Lake to "" Soldier "" Tecumseh	cownship.
No. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	Name. Arkalon Liberal Total SHAWNEE COU Name. Valencia. Dover Prairie Home. Mount Calvary. Mission Center Catholic Rossville. Olive Branch Bohemian Walnut Hill Silver Lake Rochester Reform School. Zion Bauer Bethel.	Acres. 5 10 15 NTY. Acres. 4 2 4 5 3 10 5 3 2 7 5 20 1 1 1 5	Location Dover towns """ Menoken "" Mission """ """ Silver Lake "" Soldier "" Tecumseh	township.
No. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	Name. Arkalon Liberal Total SHAWNEE COU Name. Valencia. Dover Prairie Home. Mount Calvary. Mission Center Catholic Rossville. Olive Branch Bohemian Walnut Hill Silver Lake Rochester Reform School. Zion. Bauer	Acres. 5 10 15 NTY. Acres. 4 2 4 5 3 10 5 3 2 7 5 20 1 1 1 5	Location Dover towns """ Menoken "" Mission """ """ Silver Lake "" Soldier "" Tecumseh "" Topeka	cownship.

	SHAWNEE COUNTY—	conclu	ded.	
No.	Name.	Acres.	. Location	•
18	Foster	5	Topeka towns	
19	Ritchie	5	44	"
2 0	Lynn Creek	3 1	"	"
21	Shawnee Center	2	Williamsport	"
22	Yocum	3	44	"
23	Yarrington	2	"	"
24	Carter	3	"	44
25	Half Day	5	Soldier	"
	Total	1301	•	
		-	•	
	SHERIDAN COU	NTY.		
No.	Name.	Acres.	Location.	
1	Lucerne	5	Adell township	
2	Bow Creek	5	Bow Creek tow	nship.
8	Hoxie	15	Kenneth	"
4	Lutheran	1	Parnell	"
5	Fairview	3	Prairie Dog	46
6	Selden	5	Sheridan	"
7	St. Paul's Catholic	2	Solomon	**
8	Studley	2	Valley	"
9	Mount Pleasant	2	Saline	"
10	Adell	5	Union	**
	Total	45		
	All too small.	20		
•	All too small.			
	SHERMAN COUN	ITY.		
No.		cres.	Location.	
1	Evan. Lutheran	5	Smoky townshi	p.
2	Dunker	5	"	
3	Sherman ville	5	Shermanville to	
4	Unnamed	2	State Line	"
5	Evangelical Lutheran	5	Smoky	"
6	Dunkers	5	Shermanville	66
7	Shermanville	1	Union	"
8	Breusters	2	44	"
9	Kanarado	4	State Line	"
10	Goodland	20	Itaska	"
11	Harmony	5	Voltaire	"
12	Dunkers	4	Logan	"
13	New Liberty	3	Grant	"
14	Lava	2	**	"
15	Mennonite.	3	Iowa	"
16	Edson	2	Washington	"
17	Freeland	2	Llanos	"
18	Belleview	5	Grant	"
19	Mennonite	1	Itasca	"
20	Catholic	2	Llanos	"

SMITH COUNTY.

No.	Name.	Acres.	Location.	
1	Oriole	2	Logan townshi	in.
2	Mount Hope	-		
3	Womer	••••	Pawnee "	
4	Eminence	2	Beaver "	
5	Pleasant Hill	3	Martin "	
6	Reamsville	3	,	
7	Germantown	2	Swan "	
8	Meade	1	Pleasant "	
9	Cedar Hill	4	Cora "	
10	Cora		"	
11	Pleasant Plains	2	White Rock to	wnship.
12	Price	2	Oak	"
13	Sweet Home	2	"	"
14	Bellaire		Blaine	• 6
15	Fairview	40	Center	"
16	Pleasant View	2	Lane	66
17	Myers		46	"
18	German Lutheran	1	Cedar	"
19	Olive Branch	2	Valley	"
20	Cedarville	4	Harvey	44
21	Borgman	2	"	"
2 2	Freiling	3	"	"
23	Crystal Plains	3	Crystal Plains	"
24	Custer	1	"	"
25	Oak Creek	28	Webster	"
26	Greenwood	$2\frac{1}{2}$	Garfield	"
27	Bell	1	44	"
2 8	Garrett	1	"	"
29	Harlan	3	Harlan	"
30	Hammond	. 3	"	"
31	Gaylord	40	Gaylord city.	
32	Kallash	2	Dor township.	
33	Leesburg	2	" "	
34	Prairie View	1	White Rock to	wnship.
3 5	Unnamed	• • • •	Lane	" -
36	Unnamed	• • • •	44	"
	Total	1401		

Area of seven not given; all but one too small.

Note by county clerk.—"There are other cemeteries in the county, but they were not returned by the assessors."

STAFFORD COUNTY.

No.	Name.	Acres.	Loca	tion.
1	Evangelist	2	Hayes to	wnship.
2	United Brethren	. 1	"	"
3	Eden Valley	5	Seward	4.6
4	Pleasant Ridge	. 2	Lincoln	"
5	St. Francis	5	"	"

STAFFORD COUNTY—concluded.

		-	
No.	Name.	Acres.	Location.
6	Peace Creek	2	Cooper township.
7	Bedford	2	46 46
8	Macksville	6	Farmington township.
9	Stafford	25	Stafford "
10	Prattsburg	5	Clear Creek "
11	Plana	1	Rose Valley "
12	Leesburg	1	
13	Faylerville	1	Union "
14	Prairie Chapel	2	**
15	Neola	21	York "
16	Pleasant Valley	2	Fairview "
17	Livingston	4	Albans "
18	Taylorville	ī	Union "
	Total		
	10tai	69 1	
	STANTON COUN	ITY.	
No.		cres.	Location.
1	Mitchellville	1	Township not given.
2	Johnson City	1	**
3	Roanoke.	1	Roanoke township.
4	Liverpool	_1_	**
	Total	4	
	STEVENS COUN	TY.	
No.	STEVENS COUN		Location.
No. 1	Name.	cres.	Location. Center township.
1	Name. A Hugoton	cres. 12	Center township.
1 2	Name. A Hugoton Friends	cres. 12 2	Center township. Voorhees "
1 2 3	Name. A Hugoton	2 2	Center township. Voorhees "
1 2	Name. A Hugoton	2 2	Center township. Voorhees " Harmony "
1 2 3	Name. A Hugoton	2 2	Center township. Voorhees " Harmony "
1 2 3	Name. A Hugoton Friends Dermot Woodsdale Total	12 2 2 	Center township. Voorhees " Harmony "
1 2 3 4	Name. A Hugoton Friends Dermot Woodsdale Total. SUMNER COUN	12 2 2 2 16	Center township. Voorhees " Harmony " "
1 2 3 4 No.	Name. Hugoton Friends Dermot Woodsdale Total SUMNER COUN Name.	12 2 2 2 16	Center township. Voorhees " Harmony " " Location.
1 2 3 4 No.	Name. Hugoton Friends Dermot Woodsdale Total. SUMNER COUN Name. Morris Center	12 2 2 16 TY. Acres. 3	Center township. Voorhees " Harmony " " Location. Morris township.
1 2 3 4 No. 1 2	Name. Hugoton Friends Dernot Woodsdale Total SUMNER COUN Name. Morris Center Oxford	12 2 2 2 16 TY. Acres. 3	Center township. Voorhees " Harmony " " Location. Morris township. Oxford "
1 2 3 4 No. 1 2 3	Name. Hugoton Friends Dermot Woodsdale Total SUMNER COUN Name. Morris Center Oxford Belle Plaine	12 2 2 2 16 TY. Acres. 3 15	Center township. Voorhees " Harmony " " Location. Morris township. Oxford " Belle Plaine township.
1 2 3 4 No. 1 2 3 4	Name. Hugoton Friends Dermot Woodsdale Total Sumner coun Name. Morris Center Oxford Belle Plaine Council Hill	12 2 2 2 16 TY. Acres. 3 15 5	Center township. Voorhees " Harmony " " Location. Morris township. Oxford " Belle Plaine township.
1 2 3 4 No. 1 2 3 4 5	Name. Hugoton Friends Dermot Woodsdale Total Sumner coun Name. Morris Center Oxford Belle Plaine Council Hill Prairie Garden	12 2 2 16 TY. Acres. 3 15 5 3 2	Center township. Voorhees " Harmony " " Location. Morris township. Oxford " Belle Plaine township. " " " " "
1 2 3 4 No. 1 2 3 4 5 6	Name. Hugoton Friends Dermot Woodsdale Total Sumner coun Name. Morris Center Oxford Belle Plaine Council Hill Prairie Garden Zious Lutheran	12 2 2 16 TY. Acres. 3 15 5 3 2 2 2	Center township. Voorhees " Harmony " " " Location. Morris township. Oxford " Belle Plaine township. " " " " " " Creek "
1 2 3 4 No. 1 2 3 4 5	Name. Hugoton Friends Dermot Woodsdale Total Sumner coun Name. Morris Center Oxford Belle Plaine Council Hill Prairie Garden Zious Lutheran Pleasant Hill	12 2 2 16 TY. Acres. 3 15 5 3 2 2 2 2	Center township. Voorhees " Harmony " " " Location. Morris township. Oxford " Belle Plaine township. " " " " " Creek " Jackson "
1 2 3 4 No. 1 2 3 4 5 6	Name. Hugoton Friends Dermot Woodsdale Total Sumner coun Name. Morris Center Oxford Belle Plaine Council Hill Prairie Garden Zious Lutheran Pleasant Hill Fairview	12 2 2 16 TY. Acres. 3 15 5 3 2 2 2 3	Center township. Voorhees " Harmony " " " Location. Morris township. Oxford " Belle Plaine township. " " " " " " Creek " Jackson " Seventy-six "
1 2 3 4 No. 1 2 3 4 5 6 7 8 9	Name. Hugoton Friends Dermot Woodsdale Total Sumner coun Name. Morris Center Oxford Belle Plaine Council Hill Prairie Garden Zious Lutheran Pleasant Hill Fairview Winier	12 2 2 16 TY. Acres. 3 15 5 3 2 2 2 3 1	Center township. Voorhees " Harmony " " " Location. Morris township. Oxford " Belle Plaine township. " " " " Creek " Jackson " Seventy-six " Greene "
1 2 3 4 No. 1 2 3 4 5 6 7 8 9 10	Name. Hugoton Friends Dermot Woodsdale Total Sumner coun Name. Morris Center Oxford Belle Plaine Council Hill Prairie Garden Zious Lutheran Pleasant Hill Fairview Winier Mount Carmel	12 2 2 16 TY. Acres. 3 15 5 3 2 2 2 3 1 3	Center township. Voorhees " Harmony " " " Location. Morris township. Oxford " Belle Plaine township. " " " " " Creek " Jackson " Seventy-six " Greene " "
1 2 3 4 No. 1 2 3 4 5 6 7 8 9 10 111	Name. Hugoton Friends Dermot Woodsdale Total. Sumner coun Name. Morris Center Oxford Belle Plaine Council Hill Prairie Garden Zious Lutheran Pleasant Hill Fairview Winier Mount Carmel Forest Hill	12 2 2 16 TY. Acres. 3 15 5 3 2 2 2 3 1 3 3 3	Center township. Voorhees " Harmony " " " Location. Morris township. Oxford " Belle Plaine township. " " " " Creek " Jackson " Seventy-six " Greene " " " Guelph "
1 2 3 4 No. 1 2 3 4 5 6 7 8 9 10	Name. Hugoton Friends Dermot Woodsdale Total Sumner coun Name. Morris Center Oxford Belle Plaine Council Hill Prairie Garden Zious Lutheran Pleasant Hill Fairview Winier Mount Carmel	12 2 2 16 TY. Acres. 3 15 5 3 2 2 2 3 1 3	Center township. Voorhees " Harmony " " " Location. Morris township. Oxford " Belle Plaine township. " " " " Creek " Jackson " Seventy-six " Greene " " " Guelph " Caldwell "
1 2 3 4 No. 1 2 3 4 5 6 7 8 9 10 111	Name. Hugoton Friends Dermot Woodsdale Total. Sumner coun Name. Morris Center Oxford Belle Plaine Council Hill Prairie Garden Zious Lutheran Pleasant Hill Fairview Winier Mount Carmel Forest Hill	12 2 2 16 TY. Acres. 3 15 5 3 2 2 2 3 1 3 3 3	Center township. Voorhees " Harmony " " " Location. Morris township. Oxford " Belle Plaine township. " " " " Creek " Jackson " Seventy-six " Greene " " " Guelph "
1 2 3 4 No. 1 2 3 4 5 6 7 8 9 10 11 12	Name. Hugoton Friends Dermot Woodsdale Total. Sumner Coun Name. Morris Center Oxford Belle Plaine Council Hill Prairie Garden Zious Lutheran Pleasant Hill Fairview Winier Mount Carmel Forest Hill Caldwell.	12 2 2 16 TY. Acres. 3 15 5 3 2 2 2 3 1 3 3 2 2	Center township. Voorhees " Harmony " " " Location. Morris township. Oxford " Belle Plaine township. " " " " Creek " Jackson " Seventy-six " Greene " " " Guelph " Caldwell "
1 2 3 4 No. 1 2 3 4 5 6 7 8 9 10 11 12 13	Name. Hugoton Friends Dermot Woodsdale Total. Sumner Coun Name. Morris Center Oxford Belle Plaine Council Hill Prairie Garden Zious Lutheran Pleasant Hill Fairview Winier Mount Carmel Forest Hill Caldwell. Christian Church	12 2 2 16 TY. Acres. 3 15 5 3 2 2 2 3 1 3 3 2 2 2	Center township. Voorhees " Harmony " " " Location. Morris township. Oxford " Belle Plaine township. " " " " Creek " Jackson " Seventy-six " Greene " " " Guelph " Caldwell " Springdale "

Cemeteries.

NUMBER COUNTY—concluded

	SUMNER COUNTY—C	onclud	ed.	
No.	Name.	Acres.		Location.
16	Littleton	2	Gore 1	township.
17	Mulvane	10	"	"
18	Conway Springs	5	Springe	lale '' ՝
19	Springhill	2	- "	46
20	Mount Hope	2	Walton	44
21	Hansen	1	66	44
22	Miller	2	Falls	46
23	Carzine	2	44	
24	Porter.	2	London	44
25	Milan	6	Ryan	4.6
26	Avon Center	2	Avon	44
27	Mayfield.	2	Osborn	. "
28	Union	2	"	"
20	-			
	Total	83	•	
	Area of one not given.			
	THOMAS COUN	TY.		
No.	Name.	Acres.	Lo	cation.
1	Shultz	5	Barrett	township.
2	Brownville	1	Kingery	
3	Kingery	1	Hale	**
4	Gem	$2\frac{1}{4}$	Lacey	66
5	Beulah	10	Morgan	44
6	Oakley	5	Randall	44
7	Menlo	2	"	**
8	Rexford	2	Smith	**
9	Summers Township	2	Summer	rs "
10	Mingo	1	4.6	"
	Total	311		
	10001	OIT		
	TREGO COUNT	w		
No.		Leres.	T	ation.
1	Ogallah	ь сген. З		township.
2	Wa Keeney	8	Wa Kee	-
3	Collyer	5	Collyer	ney
o	<u> </u>		Conyer	
	Total	16		
	WABAUNSEE COU	NTY.		
No.		teres.		ation.
1	Alma City	10	Alma to	
2	Catholic	5	"	"
3	German Lutheran	5	"	"
4	American Lutheran	2	. "	44
5	Unnamed	2	Farmer	"
6	Unnamed	1	"	"
7	Evangelical Lutheran	3	Kaw	"
8	Evangelical	2	"	"
9	Greenwood	$2\frac{1}{2}$	"	"
		-		

${\bf WABAUNSEE}\ \ {\bf COUNTY-} concluded.$

No.	Name.	Acres.	Loca	tion.
10	Mission View	11	Mission tow	nship.
11	Mission Creek	4	"	
12	Catholic	2	Newbury t	ownship.
13	Newbury	2	"	46
14	Snokomo	2	66	"
15	Harveyville	5	Plumb	"
16	Chalk	2	Rock Creek	"
17	Pleasant Ridge	2	44	"
18	Methodist Episcopal	3	44	46
19	Wabaunsee	10	Wabaunsee	"
20	Eskridge	6	Wilmington	ı "
21	Baptist	1	Garfield	"
22	Lutheran	1	66	46
23	Pleasant Hill	2	44	44
24	Congregational Church	61	Maple Hill	"
25	Bethlehem	ī	Newbury	44
26	United Brethren	2	Rock Creek	"
	Total	841		
	All too small: average three acres.			

WALLACE COUNTY.

No.	Name.	Acres.	Location.
1	Sharon Springs	10	Sharon Sp'gs township.
2	Fairview	5	Morton "
3	Salem	5	Harrison "
4	Stockholm	3	Stockholm "
5	Wallace	10	Wallace "
6	Weskan	10	Weskan "
7	Bethany	5	Stockholm "
	Total	48	

WASHINGTON COUNTY.

No.	Name.	Acres.	Locat	ion.
1	Larabee	1	Haddam 1	township.
2	Haddam City	2	"	"
3	Mahaska		Union	**
4	Greenfield	2	Lowe	66
5	St. Peter and St. Paul	6	46	"
6	Gaskill	2 1	Highland	46
7	Joy Creek	4	٠.,	"
8	Evan St. Paul		Linn	44
9	Linn	2	"	"
10	Roman Catholic	3 🖫	Grant	"
11	Fairfield	2	Coleman	"
12	Belson	14	"	**
13	Dale.	. 1		"
14	Mount James	5	Logan	44
15	St. Paul	11	~	"

WASHINGTON COUNTY—concluded.

	WASHINGTON COUNTY		-	
No.		Acres.	Location.	
16	Emmons	. 1	Charleston to	-
17	Baptist	. 1	Brantford	"
18	Mission Friend	1	66	"
19	Swedish Lutheran	2	44	"
20	Public		66	"
		_	C4	
21	Luther		Strawberry	44
22	Reiter.			"
23	Sacred Heart		Greenleaf	
24	Spradling	1	"	"
25	I. O. O. F	6	Clifton	"
26	Rosco	4	"	"
27	Chepstow	1	Lincoln	"
28	St. Peter	1	"	"
29	Evergreen	-	66	"
30	Spring Valley		"	"
31	Vining		Clifton	"
32	Parallel	1	Sherman	"
			Snerman	"
33	Peach Creek	1	"	"
34	German Lutheran	1	"	4.
35	Elliott	2		
36	Catholic	1	. 44	"
37	Evan. Lutheran	2	Lanham	"
38	Lutheran	11	Sheridan	"
39	Methodist	14		"
40	Catholic	3	Kimeo	"
41	Spence	2	44	"
42	Maplewood	2	Barnes	"
43	Hollenberg	21	Franklin	"
44	Mount Zion.	1	"	"
45	Durmick	î	44	"
46		2	Indonondonos	"
	Evang. Lutheran	_	Independence	"
47	Mount Pleasant	3	Washington	"
48	Driskell	4	Franklin	"
49	Derrick	41	•••	
50	Patterson	2	Haddam	"
51	Lesher	2	44	"
52	Wright	2	44	"
53	Hanson	5	Hanover	44
54	Catholic	5	44	"
55	Unnamed	5	Little Blue	"
	Total	129#		
•	Average two acres; all too small.			
	WICHITA COUN	ITY.		•
No.		cres.	Location.	
1	Beulah	2		vnship.
2	Pearl	3	-uwarus Wi	ummb.
3	Grand Prairie	4	White Woman	"
4	German Lutheran	5	" " "	66
_		•		

Kansas State Horticultural Society.

WICHITA COUNTY—concluded

	WICHITA COUNTY—	onclud	eđ.	
No.	Name.	Acres.	Location	n.
5	St. Monyer	2	Leoti townsl	ip.
6	I. O. O. F	20	"	"
7	M. E., of Selkirk	10	"	"
8	Carwood	1	Edwards	"
9	Marienthal	10	White Woman	ı "
10	Coronado	1	Not given.	
	Total	58	_	
	10001	0 0		
	WILSON COUN			
No. 1		Acres.	Location.	L.:
_	Fredonia	10	Center towns	nrp.
2	Buffalo	5	Chron	
3	Maple Grove	5		
4	Coyville	6	Verdigris tow	nsnıp.
5	Neodesha	15	Neodesha	"
6	Star	4	Newark	44
7	Farmington	4	Prairie	"
8	Altoona	10	Cedar	"
9	New Albany	5	Fall River	"
10	Varner	3	Neodesha	"
11	Sandy Valley	4	Webster	••
	Total	71		
	WOODSON COU	NTY.		
No.	WOODSON COU	NTY. Acres.	Location.	
1			Belmont town	
1 2	Name. Belmont Daniels	Acres. 10 5	Belmont town	"
1	Name. Belmont	Acres. 10	Belmont town "Center	"
1 2	Name. Belmont Daniels	Acres. 10 5	Belmont town	
1 2 3	Name. Belmont	10 5 10 20	Belmont town "Center	
1 2 3 4 5 6	Name. Belmont Daniels Kilida Graceland Pleasant Valley. Syria	10 5 10 20 1	Belmont town Center Eminence Liberty	66 66 66
1 2 3 4 5	Name. Belmont	10 5 10 20	Belmont town '' Center '' Eminence	66
1 2 3 4 5 6 7 8	Name. Belmont Daniels Kilida Graceland Pleasant Valley. Syria	Acres. 10 5 10 20 1 1 1 1	Belmont town Center Eminence Liberty Neosho Falls	66 66 66 66 66
1 2 3 4 5 6 7 8 9	Name. Belmont Daniels Kilida Graceland Pleasant Valley. Syria. Dutro Cedarvale Catholic	Acres. 10 5 10 20 1 1 1 4	Center Center Eminence Liberty Neosho Falls	66 66 66 66 66 66 66 66 66 66 66 66 66
1 2 3 4 5 6 7 8 9	Name. Belmont Daniels Kilida Graceland Pleasant Valley. Syria. Dutro Cedarvale Catholic. Evangelical.	Acres. 10 5 10 20 1 1 1 1 20 2 2 2 2 2 2 2 2 2 2 2	Belmont town Center Eminence Liberty Neosho Falls North	
1 2 3 4 5 6 7 8 9 10 11	Name. Belmont Daniels Kilida Graceland Pleasant Valley. Syria. Dutro Cedarvale Catholic	Acres. 10 5 10 20 1 1 1 4	Belmont town Center Eminence Liberty Neosho Falls North	
1 2 3 4 5 6 7 8 9 10 11 12	Name. Belmont Daniels Kilida Graceland Pleasant Valley Syria Dutro Cedarvale Catholic Evangelical Askren Catholic	Acres. 10 5 10 20 1 1 1 10 4 2 2 12	Belmont town Center Eminence Liberty Neosho Falls North Owl Creek	
1 2 3 4 5 6 7 8 9 10 11 12 13	Name. Belmont Daniels Kilida Graceland Pleasant Valley Syria Dutro Cedarvale Catholic Evangelical Askren Catholic Lutheran	Acres. 10 5 10 20 1 1 1 20 2 2 2 2	Belmont town Center Eminence Liberty Neosho Falls North Owl Creek	
1 2 3 4 5 6 7 8 9 10 11 12 13 14	Name. Belmont Daniels Kilida Graceland. Pleasant Valley. Syria. Dutro Cedarvale Catholic. Evangelical. Askren Catholic.	Acres. 10 5 10 20 1 1 1 1 2 2 12	Belmont town Center Eminence Liberty Neosho Falls North Owl Creek "	
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	Name. Belmont Daniels Kilida Graceland Pleasant Valley Syria Dutro Cedarvale Catholic Evangelical Askren Catholic Lutheran Schaede Sheetors	Acres. 10 5 10 20 1 1 1 1 10 4 2 2 12 2	Belmont town Center Eminence Liberty Neosho Falls North Owl Creek "" ""	
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	Name. Belmont Daniels Kilida Graceland Pleasant Valley Syria Dutro Cedarvale Catholic Evangelical Askren Catholic Lutheran Schaede Sheetors Prebbernow	Acres. 10 5 10 20 1 1 1 1 2 2 12 2 18	Belmont town Center Eminence Liberty Neosho Falls North Owl Creek "	44
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	Name. Belmont Daniels Kilida Graceland. Pleasant Valley. Syria. Dutro Cedarvale Catholic. Evangelical. Askren Catholic. Lutheran. Schaede Sheetors. Prebbernow Oliver.	Acres. 10 5 10 20 1 1 1 10 4 2 12 2 12 2 11	Belmont town Center Eminence Liberty Neosho Falls North Owl Creek " Perry	
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	Name. Belmont Daniels Kilida Graceland. Pleasant Valley. Syria. Dutro Cedarvale Catholic. Evangelical. Askren Catholic. Lutheran. Schaede Sheetors. Prebbernow Oliver Toronto East Side	Acres. 10 5 10 20 1 1 1 10 4 2 12 2 12 2 13	Belmont town Center Eminence Liberty Neosho Falls North Owl Creek Perry Toronto	
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	Name. Belmont Daniels Kilida Graceland. Pleasant Valley. Syria. Dutro Cedarvale Catholic. Evangelical. Askren Catholic Lutheran. Schaede Sheetors. Prebbernow Oliver Toronto East Side Toronto West Side.	Acres. 10 5 10 20 1 1 1 10 4 2 12 2 12 2 13 3	Belmont town Center Eminence Liberty Neosho Falls North Owl Creek Perry Toronto	
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	Name. Belmont Daniels Kilida Graceland. Pleasant Valley. Syria. Dutro Cedarvale Catholic. Evangelical. Askren Catholic. Lutheran. Schaede Sheetors. Prebbernow Oliver Toronto East Side	Acres. 10 5 10 20 1 1 1 10 4 2 12 2 12 2 13	Belmont town Center Eminence Liberty Neosho Falls North Owl Creek Perry Toronto	
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	Name. Belmont Daniels Kilida Graceland. Pleasant Valley. Syria. Dutro Cedarvale Catholic. Evangelical. Askren Catholic Lutheran. Schaede Sheetors. Prebbernow Oliver Toronto East Side Toronto West Side.	Acres. 10 5 10 20 1 1 1 10 4 2 12 2 12 2 13 3	Belmont town Center Eminence Liberty Neosho Falls North Owl Creek Perry Toronto	
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	Name. Belmont Daniels. Kilida Graceland. Pleasant Valley. Syria. Dutro Cedarvale Catholic. Evangelical. Askren Catholic. Lutheran. Schaede Sheetors. Prebbernow Oliver Toronto East Side Toronto West Side. Carlisle	Acres. 10 5 10 20 1 1 1 10 4 2 2 12 2 1 3 3 3 3	Belmont town Center Eminence Liberty Neosho Falls North Owl Creek Perry Toronto	

WYANDOTTE COUNTY.

No.	Name.	Acres.	Location.	
1	Argentine	10	Shawnee township	
2	Stony Point	2	Wyandotte	"
3	Grinter Chapel	2	"	**
4	St. Johns		44	66
5	White Church	2 .	Quindaro	"
6	Turner	3	**	"
7	Saylor	5	44	46
8	Bethel	1	46	"
9	Griffith	1	"	"
10	Marshall.,	1	66	"
11	Pleasant Ridge	3	Prairie	"
12	Maple Hill	14	Delaware	"
13	Quindaro	7	Quindaro	"
14	Mount Hope	12	66	"
15	Douglas		Prairie	"
	Total	80 <u>1</u>		

Too many small ones.

The following is an abstract of the cemeteries and burial-places in the different counties of the state. It is not complete, as some assessors failed to attend to it. We find that, notwithstanding a stringent state law, many cemetery plats are not recorded; hence lotowners cannot secure a perfect title and proper record of their purchases.

Allen county, twenty-three burial-places; five of only 1 acre, and only two of over 6 acres, viz., 26 and 40 acres; aggregate, 134 acres.

Anderson county, twenty-six burial-places; five being of 1 acre each; only three of over 5 acres, viz., 10, 10 and 15 acres; aggregate, 98½ acres.

Atchison county, thirteen burial-places; three of only 1 acre; only three of over 4 acres, viz., 10, 20 and 40 acres; aggregate, 93\frac{1}{2} acres.

Barber county, fifteen burial-places; one of only $\frac{1}{6}$ acre; two of $\frac{1}{2}$ acre; only three of over 4 acres, viz., 10 acres each; aggregate, 57 $\frac{1}{6}$ acres.

Barton county, twenty-six burial-places; one of \(\frac{1}{2} \) acre; only two of over 5 acres, viz., 6 and 8 acres; aggregate, 63 acres.

Bourbon county, twenty-eight burial-places; four of $\frac{1}{4}$ acre each; only three of over 10 acres, viz., 10, 20 and 80 acres; aggregate, 176 acres.

Brown county, eleven burial-places; two of 1 acre each; only two of over 5 acres, viz., 20 and 25 acres; aggregate, 67 acres.

Butler county, thirty-one burial-places; three of 1 acre each; only five of over 5 acres, viz., 8, 10, 10, 10 and 10 acres; aggregate, 145 acres.

Chase county, eleven burial-places; three of 1 acre each; only one of over 6 acres, viz., 10 acres; aggregate, 38 acres.

Chautauqua county, twenty-nine burial-places; two of only 1 acre each; eight of only 1 acre each; only three of over 6 acres, viz., 10, 8 and 10 acres; aggregate. 82 acres.

Cherokee county, thirteen burial-places; five of 2 acres or less; three of over 5 acres, viz., 6, 12 and 10 acres; aggregate, 54½ acres.

Cheyenne county, ten burial-places; all small; aggregate, 20 acres. Clark county, six burial-places; aggregate, 109 acres.

Clay county, thirty-nine burial-places; only five of over 5 acres, viz., 10, 11 and 40 acres; aggregate, 137½ acres.

Cloud county, forty-five burial-places; area of three not given; only four of over 5 acres, viz., 8, 12, 13 and 15 acres; aggregate, 1463 acres.

Coffey county, forty-six burial-places; three of ½ acre, ten of 1 acre each; only five of over 5 acres; total, 140% acres.

Comanche county, five burial-places, total, 96 acres.

Cowley county, twenty-two burial-places; four of 1 acre, one over 5 acres; total, 64 acres.

Crawford county, twenty-nine burial-places; one of 2 acre, five of 1 acre; ten over 6 acres, viz., 10, 10, 18, 10, 10, 20, 15, 20, 10 and 10 acres; total, 193 acres.

Decatur county, twenty burial-places; two of 1 acre; only three of over 5 acres, viz., 5½, 10½ and 10 acres; total, 84 acres.

Dickinson county, fifteen burial-places; area of two not given; two of 1 acre each; only one over 5 acres; total, 56 acres.

Doniphan county, twenty-six burial-places; one each of $\frac{2}{8}$, $\frac{1}{180}$, $\frac{1}{8}$, $\frac{1}{40}$, $\frac{1}{8}$ acre; six of 1 acre each; only four of over 5 acres, viz., 10, 7, 20 and 6 acres; total, $89\frac{1}{8}$ acres.

Douglas county, forty-two burial-places; area of sixteen not given; four of only 1 acre; six of over 5 acres, viz., 40, 20, 17½, 7, 7 and 18 acres; total, 169½ acres in the twelve given.

Edwards county, eight burial-places; one of only 1 acre; only two of over 5 acres, viz., 20 and 20 acres; aggregate, 61 acres.

Elk county, twenty-one burial-places; one of ½ and two of 1 acre; only three of over 5 acres, viz., 10, 10 and 10 acres; total, 66½ acres.

Ellis county, thirteen burial-places; area of one not given; seven are 5 to 10 acres each; total, 57 acres.

Ellsworth county, twenty-six burial-places; three of 1 acre; only two of over 5 acres, viz., 20 and 10 acres; aggregate, 98½ acres.

Finney county, six burial-places; total, 62 acres.

Ford county, twelve burial-places; area of three not given; only one of over 5 acres, viz., 10 acres; total given, 33½ acres.

Franklin county, twenty-three burial-places; area of 1 not given; only four of over 5 acres, viz., 6, 10, 40 and 40 acres; total given, 145\frac{2}{3} acres.

Geary county, nineteen burial-places; three of 1 acre; only four of over 5 acres, viz., 8, 10, 40 and 10 acres; aggregate, 80 acres.

Gove county, five burial-places; only two of over 3½ acres, viz., 10 and 10 acres; total, 28½ acres.

Graham county, nine burial-places; two of only 1 acre each; only two of 5 or over, viz., 5 and 10; total, 27 acres.

Grant county, four burial-places; area of one not given; others 1, 5 and 10 acres; total given, 151 acres.

Gray county, four burial-places; viz., 1, 1, 2 and 10 acres; total, 14 acres. Greeley county, three burial-places; area of each, 5 acres.

Greenwood county, twenty-six burial-places; seven of 1 acre each; four are over 5 acres, viz., 10, 10, 20, 32 acres; total, 113_{15}° acres.

Hamilton county, five burial-places; area of one not given, others are 5, 20, 30 and 40 acres; total given, 95 acres.

Harper county, twenty burial-places; five of only 1 acre each, only four of over 5 acres, viz., 11, 10, 10 and 10 acres; total, 71, acres.

Harvey county, sixteen burial-places; three of 2 acres or less; only four of over 5 acres, viz., 10, 10, 10 and 40 acres; total, 104 acres.

Haskell county, four burial places; 1, 2, 10 and 40 acres; total, 53 acres. Hodgeman county, five burial-places; three of only 1 acre each; others 2 and 20 acres; total, 25 acres.

Jackson county, twenty-five burial-places; area of one not given; thirteen of only 1 acre each; only three of over 5 acres, viz., 8, 8 and 10 acres; total, 63 acres.

Jefferson county, twenty-six burial-places; area of ten not given; total given, 108 acres.

Jewell county, forty-two burial-places; area of six not given, total given, 126% acres.

Johnson county, twenty-three burial-places; nine of 1 acre; only two of over 5 acres, viz., 8 and 14 acres; total, 71 acres.

Kearny county, four burial-places; 5, 10, 10 and 2 acres; total, 27 acres. Kingman county, nineteen burial-places; total, 122 acres.

Kiowa county, five burial-places; 2, 7, 10, 5 and 2 acres; total, 26 acres. Labette county, thirty-four burial-places; two of only \(\frac{1}{3} \) acre each; seven of 1 acre each; only nine of over 5 acres; total given, 173\(\frac{1}{3} \) acres.

Lane county, seven burial-places; total, 2070 acres.

Leavenworth county, thirty-four burial-places; area of one not given; twenty-two of 2 acres or less; four of over 5 acres, viz., 80, 13, 119 and 177 acres; total given, 343\frac{1}{2} acres.

Lincoln county, seventeen burial-places; total, 39% acres.

Linn county, twenty-nine burial-places; area of three not given; sixteen of 2 acres or less; only one of over 5 acres, viz., 7 acres; total given, 73 acres. Logan county, six burial-places; total, 96 acres.

Lyon county, twenty-six burial-places; eleven of 2 acres or less; five of over 3 acres. viz.. 5. 10. 20. 10 and 26 acres: total. 119 acres.

over 3 acres, viz., 5, 10, 20, 10 and 26 acres; total, 119 acres.

Marion county, five burial-places; 4, 4, 4, 2 and 2 acres; total, 16 acres.

Marshall county, forty-eight burial-places; eight of 1 acre each; fourteen of over 5 acres; total, 358 acres.

McPherson county, forty-one burial-places; smallest is ½ acre; eighteen are of 2 acres or less; only ten are over 5 acres; total, 206 acres.

Meade county, eight burial-places, six of 2 acres or less; only two of over 2 acres, viz., 10 and forty acres; total, 58\frac{1}{2} acres.

Miami county, thirty-five burial-places; twenty of 2 acres or less; only two of over 5 acres, viz., 8 and 6 acres; total, 862 acres.

Mitchell county, twenty-eight burial-places; seventeen of 2 acres or less; only two of over 5 acres, viz., 6 and 10 acres; total, 70% acres.

Montgomery county, thirty-seven burial-places; thirteen of 2 acres or less; only five of over 5 acres, viz., 9, 40, 13, 20, and 80 acres; total, 2151

Morris county, seventeen burial-places; eight of 2 acres or less; only two of over 5 acres, viz., 6 and 10 acres; total, 59 acres.

Morton county, one burial-place, of 40 acres.

Nemaha county, thirty-three burial-places; fifteen of 2 acres or less; only five of over 5 acres, viz., 6, 10, 6, 15 and 10 acres; total, 119 acres.

Neosho county, eight burial-places; smallest \(\frac{1}{4} \) acre; largest two of ten acres each; total, 33\(\frac{1}{4} \) acres.

Ness county, twenty-two burial-places; area of four not given; ten are of 2 acres or less; none over 6 acres; total given, 48°_{30} acres.

Norton county, sixteen burial-places; ten of 3 acres or less; six of over 5 acres; total, about 80% acres.

Osage county, twenty-six burial-places; only seven of over 5 acres, viz., 6, 10, 10, 6, 20 and 10 acres; total, 1274 acres.

Osborne county, twenty-six burial-places; sixteen of 2½ acres or less; only four of over 5 acres, viz., 11 and 10 acres; total, 80% acres.

Ottawa county, twenty 'burial-places; eight are of 2 acres or less; only two of over 5 acres, viz., 6 and 15 acres; total, 73 acres.

Pawnee county, six burial-places; total, 672 acres.

Phillips county, twenty-three burial-places; sixteen of 2½ acres or less; only five of over 4 acres; total, 144½ acres.

Pottawatomic county, fifty-two burial-places; twenty-five of 2 acres or less; not one over 6 acres; total, 1441 acres.

Pratt county, ten burial-places; total, 65 acres.

Rawlins county, fourteen burial-places; seven of 2 acres or less; only two over 5 acres, viz., 10, 10 acres; total, 52 acres.

Reno county, thirty-eight burial-places; twenty-two of 2 acres or less; only two of over 5 acres, viz., 7 and 6 acres; total, 942 acres.

Republic county, forty-eight burial-places; thirty-five of 3 acres or less; only five of over 5 acres, viz., 7, 10, 10, 6 and 10 acres; total, 140% acres.

Rice county, ten burial-places; smallest, 1 acre; largest, 25 acres; total, 37 acres.

Riley county, seventeen burial-places; ten of 2 acres or less; only four of over 5 acres; total, 107½ acres.

Rooks county, twenty-eight burial-places; fifteen are of 2 acres or less; only two of over 5 acres, viz., 7 and 15 acres; total given, 64 acres.

Rush county, sixteen burial-places; twelve are of 2 acres or less; only three of over 4 acres, viz., 10, 10 and 6 acres; total given, 47 acres.

Russell county, thirty-three burial-places. The best, most complete and most carefully compiled of any report; by J. P. Ruppenthal, of Russell. Look it up. Total, 922 acres.

Saline county, nineteen burial-places; eight of 2 acres or less; only five of over 5 acres, viz., 10, 10, 7, 8 and 7 acres; total, 12514 acres.

Scott county, five burial-places, as follows: 10, 2, 2, 5 and 6 acres; total, 25 acres.

Sedgwick county, twenty-five burial-places; nine of 2 acres or less; only three of over 6 acres, viz., 7, 74 and 26 acres; total, 1941 acres.

Seward county, two burial-places, 5 and 10 acres; total, 15 acres.

Shawnee county, twenty-four burial-places; eight of 2 acres or less; only four of over 5 acres, viz., 10, 10, 8 and 45 acres; total, 1304 acres.

Sheridan county, eight burial-places, viz., 5, 5, 15, 1, 3, 5, 2 and 2 acres; total, 45 acres.

Sherman county, seventeen burial-places; six of 2 acres or less; only one of over 5 acres, viz., 20 acres; total, 83 acres.

Smith county, thirty-six burial-places; area of seven not given; seventeen of 2 acres or less; only two above 4 acres, viz., 40 and 40 acres; total given, 102½ acres.

Stafford county, seventeen burial-places; eleven of 2 acres or less; none over 6 acres; total given, 69½ acres.

Stanton county, four burial-places; 1 acre each; total, 4 acres.

Stevens county, four burial-places, of 16 acres.

Sumner county, twenty-eight burial-places; twenty-two of 3 acres or less; only three of over 5 acres, viz., 15, 10 and 6 acres; total given, 83 acres.

Thomas county, ten burial-places; seven of 2 acres or less; others 5, 10 and 5 acres; total, 31½ acres.

Trego county, three burial-places, viz., 3, 8 and 5 acres; total, 16 acres. Wabaunsee county, twenty-six burial-places; nineteen of 3 acres or less; seven of from 5 to 10 acres; total, 844 acres.

Wallace county, seven burial-places, viz., 10, 2, 5, 10, 10, 5 and 5 acres; total, 47 acres.

Washington county, fifty-five burial-places; thirty-six of 2 acres or less; two of 6 acres each; none over 6 acres; total, 129\(\frac{2}{3} \) acres.

Wichita county, ten burial-places; total, 58 acres.

Wilson county, eleven burial-places; one under 4 acres; four over 5 acres, viz., 10, 6, 15 and 10 acres; total, 71 acres.

Woodson county, twenty burial-places; thirteen of 3 acres or less; five of over 5 acres, viz., 10, 10, 20, 10 and 12 acres; total, 90% acres.

Wyandotte county, fifteen burial-places; nine of 3 acres or less; two of over 5 acres, viz., 10 and 15 acres; total, 80% acres.

In summing up and condensing the above, before revision, we find ninety burial-places of which the acreage is not given. We find one each of the following areas: 1 square rod, 4 square rods, 1 acre, 5 acre, 1 acres, 1 acres, 1 acres, 21 acres, 31 acres, 41 acres, 51 acres, 71 acres, 101 acres, 14 acres, 17 acres, 171 acres, 28 acres, 35 acres, 38 acres, 45 acres, 46 acres, 50 acres, 67 acres, 74 acres, and 177 acres; two each of the following areas: 2 acre, 42 acres, 42 acres, 13 acres, 16 acres, 25 acres, and 26 acres; three each of 18 acres, 30 acres, and 80 acres; four of 11 acres each; five of 21 acres each; seven of 12 acres each; seven each of acre, 1 acres, and 3 acres; ten each of 7 and 8 acres; eleven of ½ acre each; twelve of 15 acres each; fourteen of 2½ acres each; fifteen of 40 acres each; twenty each of 1 acres and 20 acres; twenty-eight of 1 acres each; thirty-nine of 6 acres each; ninety-one of 10 acres each; ninety-nine of 4 acres each; one hundred and thirty-eight of 3 acres each; one hundred and eighty-five of 5 acres each; two hundred and sixty-one of 1 acre each; three hundred and forty-six of 2 acres each—making a grand total to date* (August 1, 1906) of two thousand and twenty-one burial places, covering 9100 acres. If we add for those whose areas are not given, say, 350 acres, it makes 9450 acres set aside for burial purposes.

Our dead must be cremated or buried. We are hardly up to the former yet; but why should the bones of our dead be scattered over the state in 305 little hill-top burial patches not as big as a small family vegetable-garden? or over 1104 little graveyards of five acres or less? One reason is financial. The larger cemeteries are mostly "grafts." Cheap lands are obtained, a charter secured, and the ground laid out; lots sold at the highest price the people or the individual will stand for, generally at a time when their dead is awaiting sepulture. At such times people will not "quibble or dicker," and the cemetery people profit by it. This is probably legitimate, but not necessary.

Some may resent what I say above about the large cemeteries being

^{*}Note.—This summary was made March 1, 1906. Since then 577 cemeteries, aggregating 2123 acres, have been added to the county reports.

Let us reason a little. Our statutes say a township may own and plat a cemetery, the lots to be not less than 7x14 (98) feet, and must sell such a lot to any citizen for one dollar. If we take one acre of land, containing 43,560 square feet, and allow one-half of it for roads and paths, we have left 21,800 square feet; divide this into lots containing 98 square feet and we have 222 lots, which, at \$1 each, bring \$222. But does any cemetery corporation sell lots at this low price? A lot 7x14 is capable of holding, comfortably, six adult graves. In Greenwood cemetery, Brooklyn, N. Y., the price would be \$600, or \$133,200 for half an acre. The Topeka cemetery charges for an eligible lot, 10×20 , \$100. A half-acre will make 109 10 x 20 lots, which equals \$10,900. A single-grave space, 2x6, equaling 12 square feet, costs, with digging and closing, \$15. Digging and closing, say \$5, leaves \$10 for twelve square feet of earth surface. In this kind of ground not over onethird is used for travel, so at least two-thirds of the surface is available for these single graves, as they are dug so the caskets touch (I am informed). Thus two-thirds of an acre, or 29,067 square feet will contain 2422 such single adult graves; which, at \$10 each, equals \$24,220 for the salable ground on one acre. Get the figures at your own cemetery and solve a similar problem. I presume this is what is now called "honest graft." If a man or a company can sell cheaply purchased land at the rate of \$133,200, or \$10,900, per half-acre, they might surely spend a large part of it in good roads and ornamentation on the other half-acre; or, if they can sell two-thirds of an acre for \$24,220, they might at least make the roads on the other one-third passable. I have given you the cue; now do your own figuring at home.

Our laws allow each township to own a cemetery; arrange the size of lots (not less than 7x14 feet), and say they must be sold at one dollar each to any citizen. If a cemetery must be owned by a corporation, then there should be some special law giving the lotowners more rights, a voice in the control, a voice in the expenditure of a portion of the proceeds of lot sales, for permanent improvements for the benefit of all-say grading, water service, mowing of weeds and grass, removal of rubbish, etc. It is preposterous and undemocratic for a corporation or an individual to sell off a tract of land in small parcels to a thousand people each deeply interested in sentiment and finance, and yet keep control of said land, to the discomfort and embarrassment of the said 1000 individual owners. Then the individual owners have rights as against each other in the matter of encroachment, or even unsightly and illy cared for adjoining lots. The pride or finances of the very rich should not allow them to hide the offerings and mementoes of the adjoining poor or moderate and modest owner, or to use his lot for a workshop while improving their own.

Graves should be flat, or limited in mounding, and all extra earth should at once be removed. No lot should be so located that the owner must cross, or even put his foot upon, any other lot to get to his own. Every community should have a public or civic improvement club or society. The cemetery should be one of their most honored interests. They could work together for the common good, study the plants and flowers suited to cemetery planting, manage a public vault for use when earth is deeply frozen or weather too bad for burial. Lay out scenic water, bowers, and resting-places; prevent and punish vandalism and hoodlums; control by special police, or otherwise, the too great freedom of people and teams on such days as G. A. R. memorial, or during the burial of some noted person.

They could also form a protective association to defend sufferers from the rapacity of the funeral director, the grave-digger, and the tombstone merchant.

What "rabbits" we are in the presence of the cemetery official, the funeral director, with his greedy hack-drivers, and the monument seller. The whole business draws too much blood. Why not call a halt? There are trusts in these lines as well as others.

SOME PECULIAR NAMES FOR CEMETERIES.

Lash, Judy, Sap, Custard, Comet, Cariboo, Bazaar, Polo, Sale, Big Timber, Black Jack, Sparks, Wait, Admire, Four-mile, Root's, Shuck, Chalk, Blue Stem, Wolf, Pheta, Gobengeizer, Quistling, Sconton, Buckeye, Skiddy, Tarrah, Knoughs, Morgenstein, Yocum, Snokomo.

How would you like to write to some of her dear girl friends or relatives that you had buried your darling in a place with such an uncouth, outlandish, offensive or ridiculous name? How much different it sounds to speak of "Greenwood," "Calvary," "Bethel," or some sacred or sweet Bible name, when referring to a burial-place.

The names in the above list are the actual names of Kansas burial-grounds, of which the lotowners should meet and choose something more appropriate.

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STATE LAWS REGARDING CEMETERY CORPORATIONS.

ARTICLE 12.—CEMETERY CORPORATIONS (G. S. 1901, p. 311).

8136. Powers of.
139. Lots may be conveyed; ground held by corporation exempt from taxation, and private lots exempt from attachment and execution.
140. Purchasers of lots shall become mem-

bers of corporation

§ 141. Private burying-grounds; duty of probate judge.
142. Damages, how applied; defendant to pay fees.

§ 1381. Powers of. SEC. 138. Cemetery corporations shall have power to divide the land of the cemetery into lots and subdivisions, for the purposes of the cemetery, and to tax the property for the purpose of its general improvement. [G. S. 1868, ch. 23, § 124; October 31.]

§ 1382. Conveyance of lots; exemptions. SEC. 139. Such corporation shall have power to convey, by deed or otherwise, any lot or lots of the cemetery for the purposes of sepulture. When such lots shall have been surveyed and platted, the survey and plat shall be recorded in the office of register of deeds of the county wherein the same are situated, and shall not be afterwards changed or altered. No lots shall be sold or disposed of until such plat shall have been recorded. All the ground held by such corporation for burial purposes, while so held, shall be exempt from public taxation. Every lot sold and conveyed in such cemetery shall be held by the proprietor, for the purposes of sepulture only, and shall not be subject to attachment or execution. [Id., § 125.]

§ 1383. Purchasers members of. SEC. 140. All owners of lots, purchased of any such corporation, shall become members thereof, and be entitled to vote in the election of its officers, and upon any other matters, to the same extent as stockholders in other corporations. [Id., § 126.]

Sec 27 Kan. 734.

§ 1384. Private Burying-grounds. SEC. 141. That hereafter all private burying-grounds not otherwise expressly provided for by will, deed, or in the actual possession of the owner in life, shall be under the exclusive control of the probate judge of the county in which said burying-ground may be situated; and it is hereby made the duty of said probate judge to commence and conduct a civil suit or suits for any damages that any other person may do or cause to be done to said burying-ground, or to the fence, gates or bars enclosing the same, or any of the graves or monuments therein. The style of any such suit shall be, "——, as probate judge of ——— county, against ———, defendant." [L. 1870, ch. 44, § 1; March 10.]

Dedication for: 24 Kan. 42.

§ 1385. Damages; fees. SEC. 142. All such damages collected by said suit or suits shall be by said probate judge applied to the repairing of said burying-grounds, and said probate judge shall recover, in addition to the said

damages against the defendant in any such suit, the sum of two dollars per day for all time by him actually and necessarily expended, as well also as an attorney-fee not exceeding thirty dollars, in behalf of said prosecution. [Id.. § 2.

It would be better if sections 1384 and 1385 were amended, and all private burial-grounds forever hereafter prohibited.—Secretaex.

ARTICLE 4.—OF CEMETERIES (G. S. 1901, p. 262).

§72. Survey of. 73. Lots, how conveyed. §74. Rules and ordinances concerning.

§1147. Survey of. SEC. 72. The mayor and council of any city governed by this act, may purchase, hold and pay for, in the manner hereinbefore mentioned, lands not exceeding eighty acres, in one body, outside the limits of such city, for the purpose of burial of the dead. The council shall provide for the survey, platting, grading, fencing, ornamenting and improving all the burial and cemetery grounds, and the avenues leading thereto, owned by such city, and may construct walks therein, rear and protect ornamental trees therein, and provide for paying the expenses thereof. [L. 1871, ch. 60, §67; April 3.]

§1148. Lots, how conveyed. SEC. 73. Cemetery lots owned by such city shall be conveyed by certificates signed by the mayor and countersigned by the clerk, under the seal of the city, specifying that the purchaser to whom the same is issued is the owner of the lot or lots described therein, by number, as laid down on such map or plat, for the purposes of interment; and such certificate shall vest in the purchaser, his or her heirs and assigns, a right in fee simple to such lot, for the sole purpose of interment, under the regulations of the city council; and such certificate shall be entitled to be recorded in the office of the register of deeds of the proper county without further acknowledgment; and such description of lots shall be deemed and recognized as a sufficient description thereof. The council may limit the number of lots which shall be owned by the same person at the same time; may prescribe rules for enclosing, adorning and erecting monuments and tombstones on cemetery lots; and may prohibit any diversion of the use of such lots, and any improper adornment thereof; but no religious test shall be made as to the ownership of the lots, the burial therein, or the ornamentation of graves, or of such lots. [Id., § 68.]

§1149. Rules and ordinances. SEC. 74. The council may pass rules and ordinances, imposing penalties and fines, not exceeding \$100, regulating, protecting and governing the cemetery, the owners of lots therein, visitors thereof, and punishing trespassers therein; and the officers of such city shall have as full jurisdiction and power in the enforcing of such rules and ordinances as though they related to the city itself. [Id., §69.]

ARTICLE 14.—Public Parks and Cemeteries (G. S. 1901, p. 1587).

§68. Township may provide park and ceme-

tery. May issue bonds.

Levy tax.
Petition; election.
Duty of county commissioners.

Notice of election. Bonds to be issued

75. Citizens entitled to lot.
76. Township board may use funds.
76a. School-land for cemetery.

An Act to authorize townships to provide public parks and cemeteries for the inhabitants thereof.

§7834. Township may provide. SEC. 68. That any municipal township in any county in this state is hereby authorized to provide and secure to the inhabitants thereof, within such township, parks and cemeteries in the manner and form hereinafter designated. [L. 1887, ch. 235, §1; March 15.]

§7835. May issue bonds. SEC. 69.

§ 7836. Levy tax. Sec. 70.

§7837. Petition for election. SEC. 71.

§ 7838. County commissioners. SEC. 72.

§7839. Notice. SEC. 73.

§ 7840. Bonds issued. SEC. 74.

§7841. Citizen entitled to lot. SEC. 75. Any citizen of any township owning and maintaining a cemetery under the provisions of this act, upon the payment of one dollar to the trustee of such township, which money shall be credited to the contingent fund, shall have the right and privilege to one lot in such cemetery for burial purposes; and the lots of such cemetery shall be laid off in uniform size, not less than seven by fourteen feet, with alleys and streets, as the board of such township shall direct. The clerk of such township shall keep an exact record of persons buried and location of graves in such cemeteries. [Id., §8.]

§7842. Board may use funds. SEC. 76. The town board of such township shall have full authority and power to use the funds provided by the issue of bonds as hereinbefore conditioned, in purchasing, maintaining and improving the parks and cemeteries owned in such township by virtue of this act: Provided, The trustee of such township shall make an annual report on the condition of such park and cemetery; also a full statement of the expenditures and receipts made and received thereon: Provided further, That gambling, horse-racing and selling of intoxicating liquors are forever forbidden and prohibited on such grounds, or adjacent thereto. [Id., § 9.]

§ 7843. School-land. Sec. 76a. Any municipal township of this state is hereby authorized and shall be entitled to purchase and acquire for a cemetery or burial-ground any quantity of land not exceeding five acres* in any one tract or lot of any unsold school-lands situated in this state, and shall acquire title to the same according to the method and procedure prescribed for securing sites for schoolhouses on school-lands in chapter 122 of the Session Laws of 1876: Provided, That such tract or lot shall be situate on one of the boundary-lines of the section or any quarter-section thereof. [L. 1901, ch. 397, §1; May 1.]

^{*}Should read twenty-five acres, which is little enough.-Secretary.

CEMETERY CORPORATIONS, Cities of 45,000 Population (G. S. 1901, p. 215).

- An Act providing for the organization, regulation and dissolution of corporations for establishment and maintenance of cemeteries in or adjacent to cities of the first class having a population of over forty-five thousand.
- § 922. Cemetery corporations in. Sec. 206. That every corporation hereafter formed or organized pursuant to chapter 23 of the General Statutes of 1889 for the purpose of the establishment and maintenance of cemeteries in or adjacent to cities of the first class having a population of over forty-five thousand shall have a capital stock and board of directors elected by the stockholders with the same duties and powers as the boards of directors of other private corporations for profit, and is hereby empowered to acquire and hold lands for cemetery purposes only, in said cities or within one mile thereof, not to exceed two hundred acres; and is hereby authorized to enclose, lay out or ornament and improve such lands held by it for such purposes, and to divide said lands into burial lots. [L. 1901, ch. 102, § 1; March 22.]
- § 923. Survey and plat. Sec. 207. Before such corporation shall have the power to sell or in any manner convey, for burial purposes, any of the lands held by it, it shall cause such lands to be surveyed and platted into burial lots and said plat to be filed in the office of the register of deeds in the county wherein such lands are situated; and all conveyances of said lots shall be by reference to said recorded plat: Provided, Said corporation may plat its said lands in lots of not less than five acres at any one time. [Id., § 2.]
- § 924. Conveyance. Sec. 208. That upon complying with the requirements of the preceding section, such corporation shall have the power to convey, by deed or otherwise, the burial lots as shown on said recorded plats for burial purposes only, in accordance with such regulations and by-laws as may be established and adopted by said corporation. [Id., § 3.]
- § 925. Control. SEC. 209. That such corporation shall have exclusive management and control of all lands held, laid out and sold by it for cemetery purposes until such time as all the burial lots have been sold or until such time as said corporation shall be dissolved in the manner hereinafter set forth. [Id., § 4.]
- § 926. Maintenance. SEC. 210. That such corporation shall fix and set aside a percentage of the purchase-price of each burial lot sold by it, not less than ten per cent.* thereof, for the permanent maintenance of the said cemetery, which sum so as aforesaid set aside shall be by said corporation invested in first mortgages upon real estate, and the proceeds of the said permanent maintenance fund shall be used exclusively for the maintenance of said cemetery: Provided, however, That no part of the principal of said fund shall ever be used for any purpose except for such investment: And provided further, That in no event shall any loan of said funds be made to any stockholder in such corporation, nor unless the said proposed loan shall have been approved by a unanimous vote of the board of directors duly entered upon the records of the said corporation. [Id., § 5.]
- § 928. Dissolution. Sec. 212. That upon the sale of all of the burial lots in the cemetery of said corporation, or upon a vote of two-thirds majority

^{*}This should be fifty per cent .- SECRETARY.

of the stockholders of said corporation, said corporation may be dissolved, and thereupon a permanent maintenance fund, together with all investments then outstanding, and all books, records and papers of such corporation shall be turned over to the city treasurer of the city in which or adjacent to which said cemetery is situated, who shall give a bond similar to the bond hereinbefore required of the treasurer of said corporation; and thereupon the mayor and council of said city are hereby authorized and required to provide for the investment of such funds in the same kind of securities as hereinbefore provided, and to care for and maintain the said cemetery; the proceeds of said fund to be used exclusively for such purpose. [Id., §7.]

§ 929. Exemption. Sec. 213. That all lands held by said corporation for cemetery purposes, whether platted or not, and all lots sold for burial purposes, and all vaults or other improvements for such purposes, shall be exempt from public taxation while so held; and every lot sold and conveyed in such cemetery shall be held by the proprietor for the purpose of sepulture only, and shall not be subject to attachment or execution, but such proprietor or purchaser shall not be a stockholder or member of said corporation* by reason of his being such purchaser and proprietor. [Id., §8.]

ARTICLE 7.—CEMETERIES (G. S. 1901, p. 150).

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8 63. Application of city.
64. Duty of county commissioners.
65. County clerk to file report.
8 66. Report to be recorded.
67. Pay of commissioners.
68. Notice to owners; appeal.
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An Act providing for the condemnation of lands for cemetery purposes, and prescribing the duties of the board of county commissioners, appraisers, county clerk and county treasurer thereunder.

[Took effect April 14, 1897.]

Be it enacted by the Legislature of the State of Kansas:

§ 666. Application. Sec. 63. Any city of the first, second or third class may apply to the board of county commissioners of the county wherein such city is located, to lay off cemetery grounds, or additions to said grounds for public use, as may be desired by such city. [L. 1897, ch. 81, § 1; April 14.]

§ 667. Duty of commissioners. Sec. 64. Written application being so made by the clerk of any such city, when such clerk has been directed to make such application, by the city council of such city, the said board of county commissioners shall forthwith proceed to lay off the grounds or additions for cemetery purposes, described in said written notice by said city clerk, having the same carefully surveyed, and ascertaining carefully the quantity of land or lands necessary for such purposes, and appraise the value of such portion or portions of any quarter-section or sections, or other lot of land so laid off, and assess the damage thereto; and when such commissioners shall ascertain that such portion of such quarter-section or lots belongs to different owners, they shall appraise the value and assess the damages of each such owner's interest, all which doings the county commissioners shall embody in a written report, and file the same in the office of the county clerk of such county. [Id., § 2.]

§ 668. County clerk report. SEC. 65. Such county clerk shall prepare forthwith, and file in the office of the county treasurer of such county, a true copy of such report; and if said city shall cause to be paid to such

^{*} Does not conflict with section 1383, article 12. (See p. 385.) - SECRETARY.

treasurer the amount in full of such appraisement, within ninety days of the time of such filing such copy in such treasurer's office, such treasurer shall thereupon certify such fact upon the copy of report, and shall, upon demand of the persons severally entitled thereto, pay over the amounts of such fund to such persons. [Id., §3.]

§669. Report recorded. Sec. 66. If such city shall cause the copy of report, so certified, to be, within ten days of such certifying, filed and recorded in the office of the register of deeds for such county, it shall have the right to occupy the land, so laid off by said commissioners, for the purpose of cemetery grounds, and the perpetual use of such lands shall be vested in such city. [Id., §4.]

§670. Pay. SEC. 67. [Provides for pay of commissioners.]

§671. Notice; appeal. Sec. 68. Before the board of county commissioners shall proceed to lay off any grounds for cemetery purposes, as herein provided, notice of the time when the same shall be commenced shall be given by publication, at least thirty days before the time fixed, in some newspaper published in such county, or if none be published therein, then in some newspaper of general circulation in such county wherein such lands are to be laid off; but where personal service is made on the owner or owners of such lands for the period of thirty days before commencing to lay off said grounds, as above specified, no publication notice shall be required. An appeal may be had from the determination of the board of county commissioners, as to the value of the land, etc., as is provided in section eighty-six of the Compiled Laws of 1885. [Id., §6.]

CHAPTER 105, LAWS OF 1905.

PROTECTION OF TREES, ORNAMENTAL SHRUBBERY, ETC.

An Act relating to trees, ornamental shrubbery and parking in the streets and avenues in cities of the first, second and third classes in the state of Kansas.

Be it enacted by the Legislature of the State of Kansas:

SECTION 1. That the owners of real estate situated in cities of the first, second and third classes in the state of Kansas abutting upon public streets and avenues in said cities shall have such title to and property in growing trees situated in front of such real estate but within the boundary line of the streets or avenues and within the curb line, and also such title to and right of property in the parking and ornamental shrubbery planted and cultivated within the curb line of such streets and avenues, as to enable the owners, in case of injury to or destruction of such trees, shrubbery, and parking, to recover from the person, company or corporation causing said injury or destruction the full damages which the abutting property in front of which they are situated may sustain by reason thereof, notwithstanding the fee title to the land in the streets and avenues may not be in the owner of such abutting property; and such abutting-property owners shall also have the right of action in any court of competent jurisdiction to enjoin injury to or destruction of such trees, shrubbery, and parking; provided, nothing herein contained will deprive the mayor and council of such cities of the right to direct by a proper ordinance or resolution the manner of planting and cultivating such trees, shrubbery and parking in the part of the street where they shall be so planted and cultivated, and from exercising reasonable supervision over the same, and causing them to be trimmed and grown in such a manner as not to interfere with public travel upon the streets and sidewalks.

SEC. 2. This act shall take effect and be in force from and after its publication in the official state paper.

Approved February 18, 1905.

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